INDEPENDENT TECHNICAL REPORT AND VALUATION ASSESSMENT
- WONGAI COKING COAL PROJECT
Queensland, Australia

Prepared For
BOUNTY MINING LIMITED

By
John T. Boyd Company
Mining and Geological Consultants
Brisbane, Australia

Report No. 5169.000
AUGUST 2017
14 August 2017
File: 5169.000

The Independent Directors
Bounty Mining Limited
Suite 307, Level 3
66 Hunter Street
Sydney NSW 2000

Grant Thornton Corporate Finance
Level 19, 2 Market Street
Sydney NSW 2000

Subject: Independent Technical Report and Valuation Assessment - Wongai Coking Coal Project

Dear Sir

John T Boyd Company [BOYD] is pleased to provide the Independent Directors of Bounty Mining Limited and Grant Thornton Corporate Finance with this independent technical report and valuation assessment of the Wongai Coking Coal Project as at 1 June 2017. Our report has been undertaken in accordance with the VALMIN Code (2015).

Our report will be included in the Independent Expert’s Report prepared by Grant Thornton.

Respectfully submitted,

JOHN T. BOYD COMPANY
By: [Signature]

John T Boyd II
President and CEO

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8.0 REVIEW OF KEY RISKS

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APPENDIX A: QUALIFICATIONS AND EXPERIENCE
1.0 GENERAL STATEMENT

1.1 Introduction

John T. Boyd Company [BOYD] was engaged by Bounty Mining Limited [Bounty] to provide an Independent Technical Report (ITR) and a valuation assessment in accordance with the VALMIN Code (2015)\(^1\) for the Wongai Coking Coal Project (Wongai, or the Project).

Our report will be included in an Independent Expert’s Report prepared by Grant Thornton Corporate Finance which will accompany a Notice of Meeting in relation to a proposed capital raising and conversion of a related party loan by Bounty.

Wongai is a greenfields coking coal project located in the Laura Basin in Cape York Peninsula, Queensland. The Project is remote and lies approximately 150 km north-west of the township of Cooktown and 430 km north-west of the regional city of Cairns. The location of the Project is shown on Figure 1.1 General Location Plan, following this chapter.

As at 31 December 2016 the Project was owned by the following participants in the joint venture (JV):

<table>
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<th>Percent Holding</th>
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<tr>
<td>Aust-Pac Capital Pty Ltd</td>
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<tr>
<td>Kalpower Aboriginal Landowners Trust</td>
</tr>
<tr>
<td>Bounty Mining Limited</td>
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</table>

Bounty’s share of the Project can increase as a result of the terms of a “farm in” agreement with Aust-Pac Capital. Kalpower Aboriginal Landowners Trust’s holding is non-diluting.

Bounty is seeking to develop an underground mine at Wongai, and has been contracted to develop and operate the mine on behalf of the JV.

The Project comprises of Exploration Permit Coal 2334 (EPC), which includes 50 blocks, encompassing an area of approximately 1,657 ha. The EPC expires on 13 December 2021, as shown on the Queensland Government website “MinesOnlineMaps”.

Activities undertaken on the EPC to date include: exploration drilling, 2-D seismic exploration, a geological assessment resulting in a Resource Statement\(^2\) in accordance with the JORC Code\(^3\), a Pre-Feasibility Study and a preliminary environmental assessment of the project area. Collection of environmental data has commenced.

The Pre-Feasibility Study, dated October 2016, was prepared by Bounty.

### 1.2 BOYD's Scope of Work

BOYD's scope of work was to:

1. Undertake an independent review of the technical studies of the Wongai Project undertaken to date and develop an Independent Technical Report, and

2. Develop a valuation assessment of the Project

Item 1 of our scope of work is addressed in the following Chapters 3 through 8. Item 2 is addressed in Chapter 9.

A site visit to the project area was undertaken by a BOYD Senior Geologist in mid-December 2016.

Our study was undertaken based on a review of the following documents provided by Bounty:

- Pre-Feasibility Study, including Appendices, prepared by Bounty and dated October 2016.
- Wongai Coal Project, Underground Mining Concept Study, prepared by Xenith Consulting, and dated October 2016.
- Coking Report on Wongai hole W006 02_07, prepared by ALS Coal, and dated 17 March 2015.


BOYD assumed that all available information was developed by experienced professionals, competent in their respective area of study. Re-work of matters, such as the generation of alternative resources or reserves quantities, schedules or capital estimates, was not undertaken. BOYD did not evaluate alternative mine plans. We use the terms resources and reserves in the same context as that used in the JORC Code.

1.3 **Materiality, Capability, and Independence**

This report was prepared by BOYD Specialists under the direction of the Representative Expert Mr. Ian Alexander, Managing Director – Australia. Mr. Alexander’s qualifications and experience comply with the requirements of the VALMIN Code in relation to Representative Expert, and are set out in Appendix A, following this report.

BOYD assessed the specified areas under our assigned scope of work, for reasonableness within the context of the BOYD project team’s experience, industry standards, the data supplied and the assumptions included or implied.

BOYD is an independent consulting company experienced in preparing independent technical reviews, resource and reserve evaluations, and mining valuations. Within the mining and financial services industries, BOYD is a recognised expert in exploration, resource/reserve studies, mine planning and assessment, and coal (mineral) valuation.

BOYD, including its directors, employees, and sub consultants, is independent of Bounty Mining Limited. BOYD does not have a vested interest in Bounty or associated companies other than as a result of providing independent consulting services in the ordinary course of business.

We have not undertaken any assignments for Bounty or any of the JV partners in relation to Wongai or any other asset in the past two (2) years.

This report presents our independent assessment and opinions. Payment for our services was not contingent on the findings or conclusions of this report. We have no conflict of interest regarding this project.

1.4 **Disclaimer**

The findings and conclusions presented herein represent the independent opinions of BOYD based on available source documentation, which has been supplemented by BOYD’s general industry knowledge. Our findings have been prepared in a manner consistent with prudent engineering practices and accepted industry standards.
There are inherent risks in all coal mining operations, including geological, operational, and market. The mining environment is exposed to a variety of hazards where both the probability of occurrence and consequence of an event are not predictable with a high degree of confidence. The level of uncertainty increases with greenfield projects, where an operating history is not available.

Bounty intends to develop a project in an undeveloped coal basin. The ability of any mine operator or mining complex to achieve production, quality, and financial targets is dependent on numerous factors that are beyond the control of (and cannot be fully anticipated by) BOYD. These factors include mining and geologic conditions, the capabilities of management and employees, the timely acquisition of reserves and properties, variations in market conditions, securing permits and bonding, the competitive position of the subject properties, the ability to develop and operate mines in an efficient fashion, etc. Unforeseen changes in legislation and new industry developments could substantially alter the performance of any mining company.

The findings and opinions presented herein are prepared for Bounty’s internal use and are not warranted in any manner, express or implied.

Following this page is Figure 1.1: General Location Map

Respectfully submitted,

JOHN T. BOYD COMPANY
By:

Mark Benson
Senior Geologist

Hugh Morrison
Principal Mining Engineer

Ian Alexander
Managing Director – Australia
Representative Expert
FIGURE 1.1
GENERAL LOCATION MAP
Showing
WONGAI COKING COAL PROJECT
LAURA COAL BASIN
Queensland, Australia
Prepared For
BOUNTY MINING LIMITED
John T. Boyd Company
August 2017
Scale 1:2,500,000
2.0 SUMMARISED FINDINGS

Following are our summarised findings in relation to the Wongai Coking Coal Project:

2.1 Assessment of Technical Studies

2.1.1 Geology
- The Bathurst Seam presents a potential underground thin seam bord and pillar or longwall mining target. The seam characteristics are typical of projects in other coal basins which have supported extraction by thin seam bord and pillar.

- Seam thickness averages 1.5 m. Thickness, partings and quality parameters vary across the mining domains with seam washouts and data “bulls eyes” (i.e., points of abrupt change) evident.

- Structures, including significant faulting and anticlines are identified. Additional faulting may also occur, as indicated by available borecores. Dip increases in the east domains.

- Igneous material intrusions/sills are not reported in borehole data, however volatiles are shown to decrease in some areas.

- Issues with borehole collar surveys may impact the geological model.

2.1.2 Resources
- The Bathurst Seam deposit, if appropriately extracted and processed, could practically deliver a product coal of export hard coking coal quality.

- At present, however there is insufficient geotechnical and geological data to confidently support the feasibility of the proposed thin seam, bord and pillar mining system.

- Coal quality data is constrained to portions of the resource area, limiting the classification of resource tonnage to inferred status and constraining the limit of resource polygons.

- Groundwater and the propensity for spontaneous combustion have not been determined.

- The resource estimation methods applied are judged by BOYD to be reasonable and consistent with industry standards. The Melville seam resources (8 Mt in-situ), which are considered too problematic to be efficiently mined, are included in the coal resources, and marginally inflate the reported tonnages.

- JORC classified resources total 90 Mt in-situ (excluding the Melville Seam) of which 20.2 Mt is classified as indicated and 69.8 Mt is classified as inferred. There are no measured resources identified. Non JORC coal is scheduled to maintain operations continuity.
• At present there is insufficient data to confidently support a determination of a coal reserve.

2.1.3 Mining Method and Production

• The target seam is appropriately identified as too deep and of insufficient thickness to support open cut mining.

• The place change underground bord and pillar mining method has been selected to extract the target seam. Requiring deep cuts of 10 m to 12 m to remain unsupported, the ability of immediate roof strata to facilitate deep cuts and wide spans, a prerequisite for productive place change operations, is not currently proven.

• Mining is scheduled using specialised underground equipment having a minimum operating height requirement of 1.4 m. A minimum seam thickness of 1.2 m is assumed which requires additional out of seam material (0.2 m) to be mined to provide adequate mining height. In these cases there will be an increase in dilution and reduction in ROM coal washing recovery. Operating at these reduced working sections, whilst routinely done at underground mines in the Eastern US, are not commonly practiced in Australia. Wongai will require experienced and specialist operators and modified equipment.

• The Project (Mid-Case) is scheduled to produce 2.0 MtPA ROM and 1.66 MtPA product. Scheduled rates of production are considered top quartile performances but achievable year on year with appropriate skills, personnel, resources and management systems.

• Projected mine advance rates are very high and the associated logistics and required services/infrastructure and ventilation demands will be substantial and should be carefully reviewed before commencement of the feasibility. BOYD opines that additional labour resources will be required above those scheduled.

• Additional resource recovery is likely through optimising pillar sizes and application of alternate mining strategies.

• Approximately 70% of total output over the 15 year project life is produced from Inferred coal resources or resources that have no classification. Additional exploration is required. As a minimum, all coal located within the proposed mine plan area should be drilled and coal quality tested to achieve the Indicated resource classification.

2.1.4 Coal Processing and Handling

• The stated plant is a concept level assessment based on limited data. Proposed as a conventional plant it may be constructed and operated by a reputable provider.

• The quantity of coal reporting to the fines fraction may be understated.

• Rejects and tailings management, critical for operability, as well as cost and environment management need further assessment.
Transshipping to ocean going vessels is conventional practice in many regions internationally. The procurement and delivery of proposed equipment will take up to 36 months once contracted, potentially compromising project schedules.

Stockpile sizing appears optimal. However, production and shipping assessments may modify these.

2.1.5 Environmental Approvals
- Delays in current regulatory approval are impacting the Project’s schedule.
- Delays to the Project schedule are expected in preparing and delivering the EIS and gaining the Environmental Authority. BOYD’s forecast for ML approval is July 2022, not August 2019 as shown in the PFS.
- Additional approvals will be required for the loading and shipping activities.

2.1.6 Quality
- Mined and processed coal is expected to provide a low volatile hard coking coal product suitable for the export market. A 2% discount in selling price may be expected for increased levels of sulphur and phosphorus.
- A portion of mined output will be sold as pulverised coal injection (PCI), which will impact revenue over five years of operations. Delaying the extraction of this area may assist mine economics.

2.1.7 Capital Costs and Operating Cost
- Capital estimates reflect the level of analysis but are comparable with actual 2011 costs of a similar operation.
- Current project development costs and other preproduction capital requirements are considered to be underestimated. Capital savings are assumed to be achieved through the proposed operating leases for the CHPP and transshipping processes.
- Economic forecasts should include a capital contingency allowance of 30%. Additional capital projects are identified by BOYD – drift driveage between domains, ventilation shafts.
- Operating costs are considered optimal and are considered to likely increase due to the following:
  - Number of personnel and labour unit costs are understated to attract and retain competent skilled and sufficient number of personnel.
  - High advance rates and level of infrastructure, support and ventilation structures are required.
  - Costs of rejects management are understated.
  - Costs of freight, logistics power supply, inventory and water and waste management will be higher due to the remote location of the Project.
The PFS consists of concept level assessments and associated technical opinions are preliminary and the economic assessment is high level.

Option analysis is limited and further assessments are recommended by the PFS, and this report, to determine a preferred option to be used to develop a definitive bankable feasibility study.

2.1.8 Key Risks
- A summary of significant identified project risks includes:
  - Permitting – delays due to permitting from regulatory reviews and processing, objections and reviews are considered probable. A risk exists that authorisation may not be granted.
  - Technical – geotechnical: immediate roof strata may not be of sufficient strength (competent) to enable place change mining.
  - Water - supply and groundwater volume and quality.
  - Resource knowledge – seam continuity, structures and quality.
  - Personnel – sufficient levels of capable and skilled resources in the remote location.
  - Weather/environment impact – weather event: cyclone or tropical low, temperature and humidity.
  - Environment Impact – the project is in an environmentally sensitive region with significant cultural heritage.
- A number of mitigation strategies are available to Wongai to reduce these risks including additional exploration, geotechnical assessments and reviews and reassessment of plans, schedules and capital and operating cost.

2.1.9 Additional Studies Required
Wongai has a number of competing and significant issues likely to affect the scope of future project studies, project cost, environmental management, operating efficiency and project feasibility.

The following option analysis and trade off studies are recommended to be undertaken prior to commencing the Bankable Feasibility Study. The identified issues have a direct impact on project feasibility, the Project’s potential to impact matters of environmental significance, and the ability to obtain a successful and timely approval of an Environmental Authority:

Critical
- Environment risk assessment and environment management - Identify and apply integrated key criteria into the project plan after consultation with stakeholders, planning requirements and guidelines.
- Underground geotechnical assessment and roof spanning capability (place change feasibility).
Essential
- Selective location of some activities and mine infrastructure – stockpiles, dams, waste.
- Rejects management.
- Equipment selection and supply.
- Assessment of dilution resulting from out of seam mining and partings.
- Refined mine layouts and schedules.
- Ventilation.
- Detailed planning and analysis.
- Power supply.
- Water supply.
- Spontaneous combustion.
- Coal flow and stockpile assessment

Following these assessments, a preferred development strategy should be determined, which will result in a clear BFS scope of work, minimal options analysis and refinement of accuracy on projections, schedules and cost estimates.

2.2 Valuation Assessment
- BOYD considers that the Wongai Project is in an early stage of development and that elements of the mine schedule, operating costs and capital costs are at a concept level of study.
- BOYD’s analysis of the project and approvals timeline indicates that Wongai will commence construction in approximately mid-2023, or six years from the date of this report.
- Using a market based assessment BOYD opines that the valuation assessment of the Wongai Coking Coal Project, EPC 2334, (on a 100% ownership basis), as of 1 June 2017, ranges from A$16.8M to A$25.4M.
3.0 PROJECT INTRODUCTION

3.1 Description of Project
Bounty is planning to develop the Wongai Project, an underground coking coal mine, using bord and pillar methods. The Project is planned to produce up to 2.0 Mtpa of coking coal over an anticipated mine life of 15 years, as shown in Bounty’s Mid-Case.

Run-of-mine (ROM) coal will be processed at the Coal Handling and Preparation Plant (CHPP) to be located at the mine site. Product coal will be transported using covered conveyors to a stockpile area and jetty located on the coast south-east of Bathurst Head, north of the mining area. Self-propelled, self-unloading transhipment vessels will transport coal to a transhipment area located north-east of the Flinders Group of Islands. At this location, the coal will be transferred to Panamax-size ocean going vessels for delivery to customers. Figure 3.1, Proposed Infrastructure Layout, follows this text.

The Project comprises of Exploration Permit Coal (EPC) 2334, which includes 50 blocks and encompasses an area of approximately 1,657 ha.

BOYD obtained a Public Enquiry Report from the Queensland Government “MyMinesOnlineServices” website. This report states that EPC 2334 is held by Aust-Pac and Bounty (respectively 95:5 holding), and shows that the EPC has been reduced in size from 52 sub-blocks, as stated in the PFS, to 50 sub-blocks\(^1\).

The term of the EPC expired on 13 December 2016. Bounty lodged a renewal application in September 2016 with the Queensland Department of Natural Resources and Mines (DNRM) for a period of 5 years. The EPC expires on 13 December 2021, as shown on “MinesOnlineMaps”.

3.2 General Topography and Land Use
EPC 2334 includes the Bathurst Range and extends about 30 km south of Bathurst Head and Princess Charlotte Bay. The topography within EPC 2334 is comprised of the Bathurst Range in the northern part, which is an elevated plateau of ferruginous sandstones rising to elevations of 200 m – 240 m above mean sea level. The plateau dips generally towards the south. The terrain in the southern part of the EPC is more undulating and flat. The flat western edge is underlain by sediments that overlap onto tidal flats of the Marrett/Normanby River estuary.

\(^1\) Queensland Government website, MyMinesOnlineServices, accessed on 8 June 2017: https://myminesonlineservices.business.qld.gov.au/Web/PublicEnquiryReport.htm?permitType=EPC&permitNumber=2334
The coal resource area within EPC 2334 is located within freehold land held by the Kalpowar Aboriginal Lands Trust (Trust), which owns most of the land within EPC 2334 and has a 12.5% holding in the Project. This area is grazed by free ranging cattle.

The Trust land consists of two sub-areas: a northern Category C Environmentally Significant Area that is managed by the Trust as a Nature Refuge Area, and the remaining area which is zoned as a General Use area. The coal exploration target areas overlap onto the Environmentally Sensitive Area. The EPC overlaps onto the Cape Melville National Park to the east, and onto the Marrett/Normanby River estuary which includes recognised fish habitat and Category A and B Environmentally Significant Areas.

### 3.3 Studies Undertaken by Bounty

In 2014, Bounty completed a Scoping Study for the project. In 2016, it progressed to a Pre-Feasibility Study (PFS) which was completed in October 2016. A Resource Statement was prepared in accordance with the JORC Code and completed in November 2016, in parallel with the PFS.

This report addresses BOYD’s review of the technical studies undertaken by Bounty. Our review addressed the following key areas, with reference to the 2016 studies:

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<th>Key Review Area</th>
<th>BOYD Report Chapter</th>
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<tbody>
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<td>1. Geology and coal resources</td>
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<tr>
<td>2. Proposed mine plan, Coal chain infrastructure</td>
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<tr>
<td>3. Operating costs and capital expenditure</td>
<td>6</td>
</tr>
<tr>
<td>4. Tenure and Project Timeline</td>
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</tr>
<tr>
<td>5. Key Project risks</td>
<td>8</td>
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Following this page is Figure 3.1: Proposed Infrastructure Layout.

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2 Cape York Regional Plan Draft, Queensland Department of State Development, Infrastructure and Planning, 2013
FIGURE 3.1
MAP SHOWING
PROPOSED INFRASTRUCTURE LAYOUT
WONGAIL COKING COAL PROJECT
LAURA COAL BASIN
Queensland, Australia

Prepared For
BOUNTY MINING LIMITED

Map sourced from: Wongail Coking Coal Project, Pre-Feasibility Study, 2016

SCALE (km)
20 0 20 40 60

John T. Boyd Company
August 2017
Scale 1 : 200,000
4.0 REVIEW OF GEOLOGY AND RESOURCES

4.1 Geology

4.1.1 Geological Setting
The Wongai deposit is located in the Laura Basin, in Far North Queensland. The Laura Basin is remote and is currently undeveloped. The principal seam within the deposit is the Bathurst Seam, which is lithologically located in the Middle-Late Jurassic age Dalrymple Sandstone unit. The overlying Melville Seam has been identified in the south-east of the project area, east of the Barramundi Fault. There are also intersections of thin seams above the Melville Seam. A generalised columnar section is shown in Figure 4.1, following this chapter.

Structurally, the deposit is located within a broad anticlinal feature that plunges to the south. The coal measures, as well as coal seams, are expected to either outcrop or subcrop below the ridgelines to the north of the project area although this has not been confirmed.

The following three domains (resource area subdivisions) exist within the overall deposit:

- Airstrip Deposit,
- Birthday Plains Deposit, and
- Alkaline Hills Deposit.

The locations of each of these areas, along with exploration drill holes, major faults and resource limits, are shown on Figure 4.2, following this text.

The Airstrip Deposit contains the majority of the coal resources and the Bathurst Seam thickness is fairly consistent, averaging approximately 1.8 m. Birthday Plains is located north of the Airstrip Deposit. The two deposits are contiguous, although drilling intersections indicate the seam thins in the area between them.

Alkaline Hills is located west of the Airstrip and Birthday Plains deposits. This area is poorly understood and is classified as an exploration target at present.

4.1.1.1 Coal Seams
There are four seams groups identified at Wongai. These are: the Marrett, Kalpowar, Melville and Bathurst seam groups. The Marrett and Kalpowar seams are discontinuous and are too thin to be economically feasible. The two seams recognised within the Wongai deposit are: (1) the Melville Seam, which is only present in mineable thickness in the Airstrip East domain, and (2) the Bathurst Seam, which is the principal target of mining for the Project.
**Melville Seam**

The Melville Seam is present in mineable thickness (up to 2.35 m), but only within the Airport East area. Data points are sparse. The seam has only been recorded in three holes in the other domains where it is too thin to be considered as a reasonable mining target.

Coking properties from the single drill core analysis available indicate a highly prospective coking product. However the seam lies only 2 m to 6 m above the Bathurst Seam. This vertical interval thickness will most likely be insufficient to allow both seams to be mined, and at best, will be insufficient to enable mining to occur if the Bathurst Seam has been previously extracted. There is also potential for roof instability due to inadequate interburden thickness whilst mining the Bathurst Seam.

**Bathurst Seam**

This seam is the principal target seam within the deposit. It occurs as a single clean seam throughout the Airstrip resource area, with no partings or seam splitting. Within the northern Birthday Plains area, the seam is split by partings. However, this is not clearly described in the data.

Seam thickness is greatest along the crest of the anticline and progressively reduces with distance from the anticlinal axis. This is shown in Figure 4.3, Seam Thickness and Faulting, following this text. The maximum thickness observed is a bulls eye feature, derived from a recorded thickness of 2.81 m in hole W006, located in the Birthday Plains area. Typical seam thickness at Birthday Plains is in the range of 1.2 m to 1.4 m. Within the Airstrip area, the majority of the resource area has a thickness of 1.2 m to 1.6 m, reaching a maximum of 2.2 m.

A seam washout has been interpreted from the lithological log of borehole 400001. This is located within the Birthday Plains Central area. The extent of this washout has not been defined, but it has been modelled over an area of approximately 1,000 m by 600 m. Further investigations are needed to understand the areal extent and depositional characteristics of this feature. It is also possible that other similar sedimentary features exist within the deposit which are presently undetected due to the borehole spacing.

**4.1.1.2 Structure**

The structural interpretation of the deposit has been developed through analysis of drill hole data, seismic transects and topographical features. The resources identified to date lie along the axis of a broad north-south trending anticline with a shallow axial plunge to the south. Dips are generally 2° to 3° in the centre of the deposit and increase away from the anticlinal axis. Seam dip in the Airport East Domain increases to approximately 6°.
There are seven faults identified within the deposit. These are shown on Figure 4.2. The faults are sufficiently large to serve as boundaries for resource domains and mining areas, with displacements ranging from 10 m to 150 m. They align broadly with the axis of the anticline and are likely to have developed during the folding event. The major faults are:

- The Barramundi Fault, which defines the boundary between the Airstrip East domain and the Airstrip Central and Birthday Plains South domains,
- The Marrett Fault, which defines the boundary between the Birthday Plains Central and Birthday Plains West domains, and
- Fault E which defines the boundary between the Airstrip West domain and Airport Central domain.

Fault E displacement is as large as 150 m. The Birthday Plains West domain hosts three of the other faults. These all have approximate displacement of 10 m and are downthrown the west. This portion of the Airstrip West area has not been considered in the proposed mine plan due to the structural complexity.

Depth of cover overlying the majority of the Bathurst Seam resource ranges from 100 m to 200 m as the topography varies. Depth of cover increases sharply along the limbs of the anticline, particularly in the south of the resource area. Depth of cover in the Airstrip East domain increases to as much as 500 m at the resource limit and the extent of proposed mining.

4.1.2 Exploration

The Wongai Deposit has been periodically explored since the late 1970’s. Previous tenement holders include Utah Development Company (UDC), and subsequently BHP, followed by Bathurst Coal and Power.

The majority of exploration activity has been undertaken by drilling, with a total of 111 holes being drilled within the deposit. Figure 4.2, shows the locations of the holes drilled to date. The majority of the drilling was carried out by UDC and later by Bathurst Coal and Power. Bounty has drilled five holes within the deposit. The table below summarises the drilling completed:

<table>
<thead>
<tr>
<th>Company</th>
<th>Year</th>
<th>No. of Holes</th>
</tr>
</thead>
<tbody>
<tr>
<td>UDC/BHP</td>
<td>1978-1985</td>
<td>74</td>
</tr>
<tr>
<td>Bathurst Coal and Power</td>
<td>1995-1996</td>
<td>33</td>
</tr>
<tr>
<td>Bounty</td>
<td>2013-present</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>111</td>
</tr>
</tbody>
</table>
Geophysical logging has been carried out routinely on all holes drilled. Hard copies of logs from the UDC drilling are available. The logs are presented as gamma traces alongside lithological columns. Density only, was logged within the coal bearing portion of the holes. A summary of geophysical logging work completed by Bathurst Coal and Power and Bounty follows:

- Bathurst Coal and Power routinely logged the holes they drilled with a full suite of geophysical sondes. A total of 30 of the UDC holes were logged after they were reamed out; however, only 19 of the holes could be reamed out to below the Bathurst Seam.

- A full suite of coalfield geophysical runs were made on each of the holes drilled by Bounty.

Drill holes are located on a north-south to east-west grid with spacing of approximately 1 km. Cored holes are aligned on the same grid with spacing of approximately 2 km.

Drill hole locations during the different phases have been recorded using a variety of grids and techniques. Selected sites were resurveyed using modern equipment and considerable variance was found between the locations recorded in the original survey and those of the resurvey. Analysis of the drill hole data with the resurveyed collar position resulted in simplification of the structural interpretation. Use of drill holes that have not been verified could result in model inaccuracies. The recommendation to resurvey all holes, or drill sites, made by GEOS Mining is strongly supported by BOYD.

GEOS Mining noted there is a history of poor core recovery from the seams due largely to the friable nature of the upper plies and cleated nature of the coal. The Airstrip deposit had higher recovery than Birthday Plains. Quality estimates for Inferred resources are based on seam samples achieving a minimum 80% core recovery. Losses in drill core are usually concentrated in the vitrinite macerals that make up the coal seams. Vitrinite provides the coking properties; thus there is potential for the coking properties to be understated in samples that have suffered from core loss. However, the good recovery achieved from hole W006 should serve as a reliable analysis of the coking properties the Wongai Bathurst Seam coal.

UDC commissioned 2-D seismic surveys across the deposit in 1979. A total of 15 lines were shot in the area, of which 9 lines were outside the current tenement area. The length of the lines ranges from less than 1 km up to approximately 3 km. The location and length of the lines suggest that they were shot to investigate specific structural features. GEOS Mining reviewed the results of the seismic surveys and incorporated their interpretation into the current geological model.
BOYD considers that the number and type of drill holes to be suitable for classification of resources. The drill hole density is sufficient to support the definition and estimation of developing a quantity of coal, as well as developing a general understanding of the stratigraphic and structural setting. It is expected that closer spaced drilling will be progressively undertaken ahead of mining, as is standard practice in the coal industry. Notwithstanding the inherent flexibility of the use of a bord and pillar place changing mining method, a greater density of drill holes would typically be expected for a project that is progressing to the feasibility or bankable feasibility stage. This is particularly important given the presence of the seam washout, as well as the variability in seam thickness shown on the thickness isopach maps presented in the resource statement. The commentary surrounding geological structures indicates that further faulting is likely, and additional drilling at closer spacing is needed to better define these issues.

Borehole rehabilitation could arise as a potential risk for the underground operation. Discussion regarding the reaming out and re-logging of the drill holes indicates that the BHP holes have not been grouted. An assessment of the rehabilitation status of each of the holes drilled at the site should be conducted.

**4.2 Coal Quality**

Coal quality analyses indicate that a high quality coking coal can be produced from much of the Wongai Deposit. The coal is high in vitrinite percentage, has acceptable rank and produces a strong coke. Raw ash content is variable, although it is generally less than 10% in the Airstrip domain. Birthday Plains has higher raw ash content of around 20% although reliable data points are sparse.

Dilution studies have yet to be undertaken. Coal quality data density is restricted due to poor core recovery from drill holes. This is most relevant in the Birthday Plains domain where there is insufficient data to create a coal quality model. Consequently, the estimates of product yield and product quality used in the mining schedule may not be reliable.

**4.2.1 Raw Coal**

**4.2.1.1 Birthday Plains Domain**

Statistical summaries presented in the 2016 Resource Report show large variability in moisture, ash, volatile matter and total sulphur. This could be attributed to sub-samples being included in the statistical summary. The large borehole diameter borehole W006 enabled 100% core recovery. Raw analysis of this sample approximates the statistical mean of the other analyses from this area. The statistical summary of the data from this area does not include phosphorous. This is concerning given the high phosphorous content identified elsewhere in the deposit. Mean raw
total sulphur is 1.32% with a maximum recorded value of 5.68%. W006 had raw sulphur of 0.93%. Sulphur concentrations at these levels will likely attract price penalties from customers. Further work is needed to provide confidence in the understanding of coal quality within this domain.

4.2.1.2 Airstrip Domain
The Airstrip Domain has greater data coverage than the Birthday Plains domain and a coal quality model has been generated for this area. Results from analyses show that raw ash content ranges from 4% to 10% on an air-dried basis. There are only two raw phosphorous analyses in the area with results of 0.061% and 0.203%, which are high. Total sulphur is greater than 0.90% with some results in excess of 1.23%. The higher sulphur concentrations are attributed to pyritic sulphur and it is expected that this will be lowered with washing.

The summary of raw coal quality parameters presented in the 2016 Resource Report shows raw vitrinite to be less than 70%; in comparison, the summary of product quality shows it ranging from 71% to 82%. This should be investigated to confirm the accuracy of the raw analysis summary since low vitrinite content will adversely impact on coke strength and product value.

4.2.2 Washability Analysis
Washability data on deposit samples are sparse. Only the large diameter core taken from W006 provides reliable washability data for the Birthday Plains area. BHP conducted detailed pre-treatment, sizing and washability analysis on five HQ sized core samples obtained in the Airstrip area, although only three were taken from the Bathurst Seam. Sedgman has used the five holes to derive sizing and yield envelopes for their CPP concept design. These envelopes are presented in the following tables:

<table>
<thead>
<tr>
<th>Sizing Envelope</th>
<th>Circuit</th>
<th>Finest % (ad)</th>
<th>Nominal % (ad)</th>
<th>Coarsest % (ad)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMC</td>
<td>32</td>
<td>49</td>
<td>65</td>
<td></td>
</tr>
<tr>
<td>Spirals</td>
<td>56</td>
<td>44</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Flotation</td>
<td>12</td>
<td>7</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yield Envelope</th>
<th>Circuit</th>
<th>Minimum % (ad)</th>
<th>Nominal % (ad)</th>
<th>Maximum % (ad)</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMC</td>
<td>75</td>
<td>80</td>
<td>95</td>
<td></td>
</tr>
<tr>
<td>Spirals</td>
<td>60</td>
<td>80</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Flotation</td>
<td>40</td>
<td>55</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>
The table below applies the yield envelopes to each of the size envelopes to derive an estimate of yield for each of the combinations of the tables above.

<table>
<thead>
<tr>
<th></th>
<th>Finest Size</th>
<th>Nominal Size</th>
<th>Coarsest Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Yield</td>
<td>62.4</td>
<td>66.0</td>
<td>68.8</td>
</tr>
<tr>
<td>Nominal Yield</td>
<td>77.0</td>
<td>78.3</td>
<td>78.8</td>
</tr>
<tr>
<td>Maximum Yield</td>
<td>90.4</td>
<td>91.8</td>
<td>92.8</td>
</tr>
</tbody>
</table>

The yield envelopes shown in the preceding table range from 62.4% to a maximum of 92.8%. It is unclear if these envelopes are inclusive of out of seam dilution and in-seam parting.

Yield applied to the Xenith Life of Mine (LOM) schedule falls within these yield envelopes, although the mine plan yield is inclusive of dilution. The Xenith LOM yield by domain is shown in the table below.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Effective Yield %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birthday Plains</td>
<td>65.3</td>
</tr>
<tr>
<td>Airstrip</td>
<td>81.6</td>
</tr>
<tr>
<td>Airstrip West</td>
<td>76.2</td>
</tr>
<tr>
<td>Airstrip East</td>
<td>84.7</td>
</tr>
<tr>
<td>Total Project</td>
<td>78.2</td>
</tr>
</tbody>
</table>

Yield applied to the mining model was calculated using a regression relationship developed by M Resources. The relationship was derived from a linear regression between Raw Ash (ad) and the Cumulative F1.60 mass. A 95% efficiency was applied to derive a practical yield after the theoretical yield was determined. It is unclear if the yield equation is size specific. Comparisons between the effective yield used in the mining model and the yield envelopes, show good agreement.

However, exploration indicates poor core recover in boreholes, which may reflect the soft, fine coal fraction is understated, which therefore is not included or properly represented in the yield and sizing assessments. Further work is required to provide greater confidence in the estimation of yield across the deposit. It is recommended that simulations be performed on the sizing and washability data to determine the accuracy of the regression model and efficiency factor.

BOYD was provided with insufficient information to confirm at what point in the mining model the yield equation was applied and whether or not the in-seam parting was included.

4.2.3 Product Coal

M Resources undertook an analysis of the Wongai coal quality dataset as part of a market characterisation study. M Resources concluded that the majority of the deposit is suitable for the production of hard coking coal. The quality of the Bathurst
Seam in the Airstrip East area is suitable for production of PCI or semi-soft coking coal. This is due to the increase in rank in this domain whereby vitrinite reflectance is as high as 2.08%.

Product specifications developed by M Resources for the Wongai products are shown in the following table:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Basis</th>
<th>HCC</th>
<th>PCI / SSCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>TM (%)</td>
<td>ar</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>M (%)</td>
<td>ad</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Ash (%)</td>
<td>ad</td>
<td>9.0</td>
<td>9.0</td>
</tr>
<tr>
<td>Volatile Matter (%)</td>
<td>ad</td>
<td>18.6</td>
<td>14.6</td>
</tr>
<tr>
<td>Fixed Carbon (%)</td>
<td>ad</td>
<td>71.6</td>
<td>75.6</td>
</tr>
<tr>
<td>Total Sulphur (%)</td>
<td>ad</td>
<td>1.10</td>
<td>1.10</td>
</tr>
<tr>
<td>Phosphorous (%)</td>
<td>ad</td>
<td>0.09</td>
<td></td>
</tr>
<tr>
<td>CV (kcal/kg)</td>
<td>gad</td>
<td>7,890</td>
<td>7,880</td>
</tr>
<tr>
<td>CSN</td>
<td></td>
<td>8.5</td>
<td>5</td>
</tr>
<tr>
<td>Maximum Fluidity (ddpm)</td>
<td></td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Total Dilatation (%)</td>
<td></td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Vitrinite Content (%)</td>
<td></td>
<td>77</td>
<td>74</td>
</tr>
<tr>
<td>Vitrinite Reflectance (%)</td>
<td></td>
<td>1.62</td>
<td>1.93</td>
</tr>
</tbody>
</table>

Coke oven test work was undertaken by ALS in Australia and DMT in Germany on the large diameter sample recovered from W006. Both analyses showed very good coke strength with low wall oven pressures despite the relatively high rank.

Quality data is sparse for the Airstrip East area and the analysed parameters are few. Therefore, the specification provided by M Resources is largely based on inference from their knowledge of coal properties. The designation of PCI/SSCC comes from the increase in rank which is associated with diminished plastic properties. BOYD considers that whilst the specification appears to be a reasonable inference, further test work is required for confirmation.

### 4.3 Coal Resources

The most recent estimate of resources was made by GEOS Mining in 2016. This was an update to the 2014 estimate following the drilling of borehole W006 and resurveying of old holes. Both estimates were reported in accordance with the 2012 edition of the JORC Code. The extent of the resources is shown in Figure 4.2.

#### 4.3.1 Criteria Defining Resource Limits

The confidence of the resource classification was derived from polygons surrounding the points of observation. Criteria for the selection of acceptable points of observation were holes that:

- Are geophysically logged through the target seam.
• Have seam intersections with greater than 90% seam core recovery or having less than 90% seam recovery, but a reliable correlation between high resolution geophysical log density and sample analysis ash.

The resource limiting criteria used in the 2016 estimate are listed below:

• Minimum depth of cover of 50 m.
• No maximum depth was applied as a limiting factor. The maximum depth of resources is approximately 500 m.
• Minimum full seam coal working thickness of 1.0 m for the Airstrip area and 1.2 m for the Birthday Plains area. Cumulative parting thickness of 20% - 30% of seam thickness is included to determine the full seam working thickness – a minimum of 1.4 m.
• Extrapolation was limited to 350 m in the Birthday Plains.
• Extrapolation was limited to 500 m in the Airstrip area for Indicated resources and 1,000 m for Inferred resources.

These criteria are generally in accordance with current industry standards but recognise that specialist thin seam bord and pillar mining can be feasible. The lack of good core recovery casts doubt over the reliability of some of the coal quality data, particularly in the Birthday Plains area. However, resources are classified as indicated which implies only a moderate confidence in the size and geometry of the resource. BOYD considers that the resource classification criteria will need to be carefully considered when the study progresses to development of reserves quantities.

There are contradictory statements in the 2016 Resource Report. The text of the report states that areas within 100 m of modelled faults are excluded and then on the same page state that they are included.

In situ moisture content of 10% was used to adjust air-dried density to in situ density. This value was derived from the total moisture analyses available in the dataset. The Resource Report discusses the application of industry standard formulae to derive in situ moisture. The application of this formula resulted in an in situ moisture value of 6.7%. This appears to be a more reasonable default value than the total moisture analysis for this type of coal and its usage would result in a slightly higher in situ coal resource tonnage estimate.
An excerpt of resources reported in 2016 (excluding Melville Seam) is shown in the table below:

<table>
<thead>
<tr>
<th>Area</th>
<th>Domain</th>
<th>Measured</th>
<th>Indicated</th>
<th>Inferred</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birthday Plains</td>
<td>Central</td>
<td>6.0</td>
<td>9.5</td>
<td>15.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>West</td>
<td>-</td>
<td>3.7</td>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>East</td>
<td>-</td>
<td>-</td>
<td>2.3</td>
<td>2.3</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>-</td>
<td>6.0</td>
<td>15.5</td>
<td>21.5</td>
</tr>
<tr>
<td>Airstrip</td>
<td>Central</td>
<td>14.2</td>
<td>15.8</td>
<td>30.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>West</td>
<td>-</td>
<td>5.0</td>
<td>5.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td>East</td>
<td>-</td>
<td>26.4</td>
<td>26.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>South</td>
<td>-</td>
<td>-</td>
<td>7.1</td>
<td>7.1</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td>14.2</td>
<td>54.3</td>
<td>68.5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>20.2</td>
<td>69.8</td>
<td>90.0</td>
<td></td>
</tr>
</tbody>
</table>

GEOS Mining included an additional 8 Mt of Melville Seam in their estimate. BOYD does not consider that both the Bathurst and Melville seams are mineable in the same location due to the insufficient thickness of the vertical interval between the two seams.

### 4.3.2 Potential for Additional Extraction Areas

GEOS Mining identified the Alkaline Hill area as having potential for additional resources. In both the 2014 and 2016 Resource reports, GEOS Mining identified an exploration target ranging from 10 Mt to 17 Mt. The exploration target was extrapolated from a single drill hole that intersected 1.77 m of Bathurst Seam having a raw ash of 8.2%.

Resources may extend into the deeper areas of each of the domains.

### 4.4 Coal Reserves

A coal reserve estimate for the Wongai Deposit has not been undertaken.

Following this page are:

- Figures
  1. Generalised Columnar Section
  2. Drill Holes, Faults, and Resources
  3. Seam Thickness and Faulting
FIGURE 4.1
GENERALIZED COLUMNAR SECTION
WONGAI COKING COAL PROJECT
Queensland, Australia

Prepared For
BOUNTY MINING LIMITED

John T. Boyd Company

August 2017
No Scale
5.0 REVIEW OF MINING, CHPP AND COAL CHAIN

5.1 Pre-Feasibility Study Mining Strategy

5.1.1 Summary

The PFS provides mine plans, operating costs and capital expenditure estimates for the Project. Based on the available exploration data and resource classification, all work in this PFS is considered to be at the conceptual level of study.

The PFS outlines Bounty’s plans to recover a total of 29.5 Mt ROM of coal over a mine life of 15 years (under the Mid-Case Option). The mining area is entirely located within freehold land owned by the Kalpowar Aboriginal Lands Trust, and is adjacent to areas of environmental significance and Aboriginal cultural value.

The PFS was developed by Bounty with input from a number of external technical specialists, including the following organisations:

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Area of PFS Input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geos Mining</td>
<td>Geology</td>
</tr>
<tr>
<td>Xenith Consulting</td>
<td>Mine schedule, Operating costs, Capital expenditure</td>
</tr>
<tr>
<td>Sedgman</td>
<td>Coal processing and handling</td>
</tr>
<tr>
<td>GHD</td>
<td>Load out jetty</td>
</tr>
<tr>
<td>JukesTodd</td>
<td>Infrastructure and energy design and costs</td>
</tr>
<tr>
<td>Resource Management International</td>
<td>Marketing</td>
</tr>
<tr>
<td>M Resources</td>
<td>Coal quality and marketing</td>
</tr>
<tr>
<td>Canadian Shipping Lines</td>
<td>Coal transhipment</td>
</tr>
</tbody>
</table>

The coal will be processed and loaded onto Panamax-size ocean going ships using a transhipping system. It will then be sold into the international coking coal market.

The work undertaken in the PFS indicates that Bounty will:

- Develop the Project in a remote area in north Queensland adjacent to areas of significant environmental value and cultural value.

- Extract 29.5 Mt ROM of coal using underground continuous miner systems over a period of 15 years, as shown in Figure 5.1, Resource Limits and Mining Domains, following this section.

- Process mined coal in an on-site CHPP. At this stage, it is planned that the CHPP will be provided by a supplier who will design, construct and operate the plant and associated handling facilities.

- Produce a nominal annual output of 1.60 Mt product coal. The coal is a low volatile hard coking coal (HCC). The present mining schedule indicates that from Years 10 to 12 a significant quantity of annual production will be of lower quality and sold as Pulverized Coal Injection (PCI) and/or semi-soft coking coal.
• Utilise an overland conveyor to deliver product coal to a stockpile located at the coast adjacent to the loading jetty.

• Transfer coal by self-propelled, self-unloading transhipment shuttle vessels to ocean going vessels.

• Construct a self-contained fly in- fly out mining operation, including: accommodation and messing facilities, power generation, covered coal storage facilities, water harvesting, all weather airfield, and upgrade local roads.

• Locate management facilities in Cairns and service minesite activities from that city. Use ocean going barges and road transport to deliver freight from Cairns.

• Provide employment for over 300 personnel annually, including sourcing personnel from the local Aboriginal population.

• Begin construction of the Project in 2020, followed by mining in 2022.

Bounty identified a number of further opportunities, related to:

• Coal resources and reserves (increase).
• Design of ROM and product coal storage and transport infrastructure.
• Design of the rejects system.
• ROM bypass and blending options.
• Jetty design.

Bounty identified the following key technical risks:

• Approval of the mining lease and mine development lease.
• Environment Approvals
• Project Funding
• Coal Price
• Cyclone activity.
• Safety during construction and operation
• Underground conditions.
• Availability of construction materials.

5.1.2 Mining Options Considered by Bounty

5.1.2.1 Surface Mining

The depth of cover overlying the Bathurst Seam is impacted by the presence of surface features and ridgelines, and is generally greater than 100 m (ranging from 50 m to 500 m) across the deposit. The relative thinness of the Bathurst Seam (average 1.52 m) means the overburden to coal tonnage ratio (strip ratio) is too high to allow economic extraction by open cut methods. Additionally, environmental impacts resulting from surface mining activities (such as the creation of waste dumps, generation of dust, and water run-off issues) would impact on the ability to obtain necessary approvals for the proposed operations.
These issues resulted in Bounty eliminating the open cut mining methods. BOYD agrees with this decision.

5.1.2.2 Underground Mining
Feasible underground mining options include conventional longwall, plow longwall, and bord and pillar using continuous miners.

Coal extraction by longwall a proven and widely used underground mining method, but to be efficient must operate in thicker coal seams (nominally 1.5 m and greater) having uniform mining conditions over large contiguous areas. Conventional longwall and plow longwall options were considered by Bounty due to their high potential for output and lower operating costs. These methods are widely applied in underground coal mines across Australia and internationally, the equipment is readily available and supported by manufacturers, and the processes are well established. However, longwall equipment is technically complex, requires a high level of geological and geotechnical evaluation, substantial supporting infrastructure and services, and a relatively large coal resource to provide a feasible and economic project due to the high capital expenditure requirements and extended time frame to develop a longwall mine.

The Wongai resource has thin seams, limited coal resources and geologic conditions that require greater definition. Wongai is also remote from heavy industrial supply networks and infrastructure. Bounty concluded that the application of longwall methods of mining at Wongai was not a viable option.

Bounty selected bord and pillar mining, using continuous miners and shuttle cars, as the preferred mining method. Benefits of this method include: lower initial capital (as compared to longwall), reduced subsidence impacts, and flexible mine operations (i.e., ability to adapt to variable seam thickness and mining conditions). A high output bord and pillar variant is place changing (place change), a technique where bolting (roof strata support) is performed concurrently in adjacent roads to coal cutting rather than sequentially as in conventional continuous miner operations. This option is feasible, but in BOYD’s opinion requires the strength (competency) of the immediate roof strata to span 10 m to 12 m and stand unsupported for a number of hours. In comparison to longwall mining, bord and pillar will have a lower resource recovery (40% to 50% as compared to 80% to 85% for longwall), an increased cost of production and a reduced annual production rate.

5.2 Proposed Underground Mine Development
Bounty proposes that the Wongai underground mine will utilise place change, bord and pillar methods over a mine life of 15 years.
Operations are scheduled on a full year, 7 day, 24-hr/day basis. Twelve hour work shifts are planned.

Bounty proposes to schedule up to four working areas, each equipped with a continuous miner (with an on-board dust scrubber), a mobile roof bolter, feed breaker and two shuttle cars. A bridge conveyor system may be utilised in lieu of shuttle cars in the thinner seam areas (< 1.4 m). This mining methodology is relatively flexible and capable of accommodating variations in geological features and structure. The mining strategy is predicated upon a conventional place change practice of mining supported roadways and leaving remnant pillars and roads substantial enough to avoid strata failures, caving or subsidence of the surface. A second mining phase, secondary extraction by pillar stripping or pillar extraction has been proposed as an upside case in the PFS.

These mining techniques are utilised successfully in underground coal mines in Australia and US, where place change bord and pillar mining practices are commonly used in the Eastern US in coal seams having a thickness of less than 1 m to 1.5 m.

Underground access is planned into the shallowest area via drifts from the surface which are located adjacent to the CHPP. Production is scheduled to reach full capacity within two years following the commissioning of four continuous miner panels.

An on-site coal handling and processing plant (CHPP) will be constructed to process the underground coal mined. Some coal may bypass the CHPP and be shipped directly as product coal. The CHPP will produce a washed coal product, as well as coarse and fine rejects materials which will be co-disposed in constructed retention dams. Backfilling of the underground void with CHPP rejects is planned.

A summary of the Mid-Case Option indicates the following:

- Project life: 15 years.
- Total coal mined and produced: 29.5 Mt ROM; 23.7 Mt product.
- Nominal annual coal output: 2.0 Mtpa ROM; 1.60 Mtpa product.

The schedule indicates opportunities to gain an additional 10% to 20% of output and increasing seam recovery by optimizing current designs. BOYD considers this opportunity may be achievable, subject to further study.

BOYD opines that the technical parameters and associated productivities adopted by Bounty are reasonable, presuming that geotechnical assessments that are yet to be undertaken confirm that the roof strata is competent.
5.3 Geological Constraints on Mining Operations

5.3.1 Mining Depth
Seam depths across EPC 2334 range from 50 m to 500 m. BOYD opine that industry experience indicates that thin seam bord and pillar mining may not be feasible at depths greater than 300 m. This is due to geotechnical considerations (need to leave large pillars, less favourable mining conditions due to increased stresses, etc.). As a consequence, mining rates will decrease and costs will increase.

Depth related issues including mining stress, horizontal stress and thermal heat gradient have not been evaluated at Wongai as part of the PFS. Bounty will need to address these issues in the next phase of study.

5.3.2 Structure
Weathering can extend to a depth of 72 m, which may affect immediate roof strength and roof spanning, in shallower areas of the mine plan.

Data indicates that the mining area is traversed by faults with throws ranging from 10 m to more than 50 m. Drift driveage is required through the fault zones to access the adjacent coal tonnages. The mine schedule developed by Xenith allowed for a barrier pillar around these areas precluding them from mining, and also discarded 5% of resources due to geological uncertainty.

BOYD considers this mine design consideration to be prudent; however, we note that the characterisation of these areas is presently not known and the mining domains and recoverable tonnages may change with improved data and mining experience. Borehole data indicate some drill cores were affected by shearing and faulting. Data spacing is considered to be too large to provide a definitive understanding of the geological structures and there is potential that additional faulting will be intersected in the mining domains.

5.3.3 Seam Dip
Overall seam dip is considered moderate. The eastern mining domain, Airport East, has steeper dips of 6º (or 10%), which is sufficient to negatively impact bord and pillar production rates.

5.3.4 Seam Continuity
The deposit geology indicates a level of variability that is caused by:

- Surface stratigraphy (mining depth).
- Seam washouts.
- Seam thickness.
- Seam partings.

Whilst seam continuity is not considered to be a specific concern, the identified washout may be more extensive than indicated and form a channel.
5.3.5 Seam Thickness and Dilution

The Bathurst Seam thickness ranges from less than 1 m to 2.8 m. The upper bound is limited to isolated drill holes and is not typical of the target seam. Typical thickness over the planned domains is 1.2 m to 1.6 m. Mining is scheduled down to a seam thickness of 1.2 m, which will require the mining of additional dilution material to create a working height of 1.4 m. Whilst this working height is considered very thin in the Australian underground coal mining industry, it is common in underground coal mines located in the eastern US.

Underground mines in the US efficiently and economically mine thin coal seams (less than 1 m to 1.5 m) using specialised equipment and highly efficient systems. However, it is not unusual for mining operations to excavate a working height of 1.2 m to 1.7 m regardless of seam thickness to accommodate worker comfort and effectiveness, support efficient ventilation and to more efficiently utilise mining equipment.

Conventional mining equipment available in Australia generally has a minimum operating height greater than 1.6 m. Bounty will require specialist (thin seam profile) equipment with the necessary equipment approvals.

To reflect extraction of the thin seam, Xenith has allowed for additional dilution in the mining schedules:

- Minimum working (mining) height of between 1.2 m and 1.4 m. Dilution for a 1.4 m seam section ranges from 10% to 20%, averaging 14%.
- An allowance of 0.05 m of dilution is assumed where the working section exceeds the minimum working height of 1.2 m to 1.4 m.
- Where mains drivage is required, roads are extracted to a greater height of 2.2 m. Dilution for mains driveage ranges from 20% to 40%.

However, it is considered probable that additional dilution, greater than that scheduled, will be experienced. BOYD recommends that a dilution study be undertaken to assess the impact on the mining schedule (and processing yield) once additional exploration and testing are completed and the following are determined:

- Characteristics of the immediate roof plies of mudstone: stability, spanning ability and stability.
- Seam variations, including washouts, faulting and parting.
- Equipment selection.
- Mining requirements - increases in working section to accommodate worker effectiveness or install infrastructure (overcasts, drivehead chambers, drifts between mining domains).
- Mine layout, it is expected that reduction in mains driveage are likely due to optimisation of the mine layout, reducing dilution from this activity.
Further analysis and assessment is recommended prior to commencing the BFS to:

- Assess mine scheduling and productivity.
- Develop CHPP specifications.
- Manage rejects and tailings disposal.

5.3.6 Variations in Product Coal
The mine schedule shows that HCC will be produced for the majority of the life of the Project. Coal from the Airstrip East domain will produce low volatile PCI or semi-soft coking coal due to the higher rank of the coal within this domain. Mining from the Airstrip East domain are presently planned to occur from Years 9 to 13. Quality of the coal produced in Years 10 to 12 will be exclusively low volatile PCI/semi-soft coking coal product.

Yield is reasonably consistent throughout the life of the Project, with variations due to mining the Birthday Plains Pit area (resulting from increased out-of-seam dilution and higher in situ ash content).

The Birthday Plains area has higher in situ ash content than the Airstrip domains. The average yield for each of the domains is shown in the table below.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Effective Yield %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birthday Plains</td>
<td>65.3</td>
</tr>
<tr>
<td>Airstrip</td>
<td>81.6</td>
</tr>
<tr>
<td>Airstrip West</td>
<td>76.2</td>
</tr>
<tr>
<td>Airstrip East</td>
<td>84.7</td>
</tr>
<tr>
<td>Total Average</td>
<td>78.2</td>
</tr>
</tbody>
</table>

5.3.7 Product Quality
The PFS includes some low raw ash areas that are suitable to be sold as a direct ROM product, bypassing the CHPP. In undertaking further studies, relevant issues that should be considered include:

- Dilution: the impact of dilution and working seam heights.
• Mining strategy: blending of concurrent production from multiple mining areas on a single underground trunk conveyor.

The mine is scheduled to use a single trunk conveyor system to transport mined coal from the four production sections. This will result in blending the mined qualities of coal. When PCI quality coal is mined from the Airport East area, production of HCC is also scheduled. The blending of mined coal quality should be addressed in future work as this will change stockpile requirements and reduce product quality and revenue.

5.3.8 Coal Resources Classification and the Mine Plan
Reported Bathurst Seam resources are classified in accordance with the JORC Code and total 90 Mt in situ of which 20.2 Mt are Indicated and 69.8 Mt are Inferred resources. Mine plans include the JORC resource areas but also extend into areas of coal that are not classified in accordance with the JORC Code, as shown in Figure 5.1, following this text.

An estimate of quantities scheduled by resource type indicates approximately 70% of coal scheduled over the life of the mine is classified as either Inferred or is not classified, as summarised below:

<table>
<thead>
<tr>
<th>Domain</th>
<th>Mine Plan</th>
<th>Indicated</th>
<th>Inferred</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birthday Plains</td>
<td>6.7</td>
<td>1.7</td>
<td>3.7</td>
<td>1.3</td>
</tr>
<tr>
<td>Airstrip Central</td>
<td>13.1</td>
<td>6.4</td>
<td>6.2</td>
<td>0.4</td>
</tr>
<tr>
<td>Airstrip East</td>
<td>7.6</td>
<td>-</td>
<td>7.6</td>
<td>-</td>
</tr>
<tr>
<td>Airstrip West</td>
<td>2.2</td>
<td>-</td>
<td>2.2</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>29.5</td>
<td>8.1</td>
<td>19.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Portion of mine plan (%)</td>
<td>100</td>
<td>27%</td>
<td>67%</td>
<td>6%</td>
</tr>
</tbody>
</table>

5.3.9 Bounty's Future Work Program
BOYD notes that:

• Bounty has scheduled further exploration and testing to acquire additional data in order to improve geological, geotechnical, hydrological, coal quality and other knowledge.

• Bounty indicates they plan to acquire the following data in the next phase of work in preparation for the feasibility study:
  - Groundwater: Significant flows have been reported in a large proportion of drill holes, the highest in the central and southern portion of the EPC. A piezometer was installed following the 2014 exploration program. However, no data was presented regarding water quality or flow.
  - Floor stability tests (slake testing).
- Geophysical data: Logs of a number of boreholes have been obtained. Sampling of immediate roof indicates material is carbonaceous mudstone. Geotechnical design considerations, material strengths and other characteristics are not reported. Confirmation of the mineability of the Bathurst Seam by place changing will be determined.

Continuous miner methods are more flexible and able to handle geological variations when compared to longwall methods, albeit with a potential increase in operating costs.

5.4 Mining Operations

Key matters assessed by BOYD are discussed below.

5.4.1 Selected Mining Methodology

The PFS core assumption is that immediate roof plies have sufficient strength and are capable of span and allow unsupported extended cut distances, suitable roof conditions are a critical requirement for high production place change mining. Whilst this has not been assessed, the Project has scheduled an exploration program in 2017 to obtain the required data.

The proposed operating strategy is currently stated to be room and pillar first workings only, with the upside opportunity to conduct secondary mining to extract standing pillars. Second workings will require a skilled and diligent workforce, additional equipment, such as mobile roof supports, and will result in a significant increase in operating risk. An alternate technique, practiced in a Queensland underground, is “car porting” or “belling out” into the barrier pillar where coal is mined, but no additional roof support is installed. If successfully implemented, this practice achieves higher production rates and reduces material costs. BOYD recommends that a proof of concept review of this operating strategy is undertaken prior to commencing the BFS.

Pillar dimensions are assessed on a holistic basis. BOYD considers that the pillar dimensions and seam recovery assumptions are conservative in relation to place change operating strategies (assuming future mining conditions are conducive to place change bord and pillar mining). BOYD opines that further analysis by Bounty will likely deliver an increase in seam recovery on first workings of 10% to 15% without compromising pillar stability. This would increase annual output and/or extend project life.

The thin seam, with relatively low tonne per metre advance and requirement for high production rates, means the mine advances a total of 150,000 m per year. Each continuous miner (CM) panel advances over 30,000 m or 2,000 m of panel length per year. A total of 76 panels are scheduled to be completed in 15 years of mining, an
average of 5 per year, as shown in Figure 5.2: PFS - Proposed Mine Schedule. This will require the management of logistics and infrastructure issues for the supply of consumables to each mining unit, timely installation and recovery of infrastructure and services (such as driveheads, conveyors, ventilation seals and stoppings).

Bounty will need to consider logistics management in greater detail in terms of personnel, equipment and cost. Modification of the mining strategy to incorporate methods such as “car porting” will maintain and potentially improve both mine efficiency and the current cost assumptions.

BOYD considers that the present mine schedules developed by Xenith to be at a conceptual level of study. Further optimisation in progressing to a BFS will most likely result in improvements to the mine plan. For example, realigning the northern Birthday Plains panels to an east-west alignment will reduce the requirement for mains driveage, reduce the number of trunk conveyors required, increase uptime and reduce ventilation costs.

5.4.2 Operability
Wongai will be similar to a number of other mining projects in Australia. It is located in a remote area away from population centres, infrastructure, industrial and engineering services, and suppliers of utilities. Personnel will access the site on a fly-in fly-out basis and be accommodated on site. The available road network will complicate logistical issues. It is assumed that infrastructure, equipment, bulk supplies of diesel and consumables will be supplied by barge from Cairns.

The prevailing climate in Far North Queensland is tropical, consisting of a hot wet season and a cool dry season. Site access to the mine site during the presence of tropical lows will restrict access to the site for personnel, medical and other services, and supplies.

Notwithstanding the remoteness of Wongai, similarly located mining projects are found throughout Australia and other parts of the world. The projects that are efficient and economically feasible are the result of appropriate resourcing, cost structures and good management.

Wongai is located in a sensitive environmental and cultural heritage region and will require specific management controls to be developed and implemented.

Whilst mining operations in the proposed location are not currently viewed as prohibitive, the PFS has addressed and costed the apparent issues on a conceptual basis only. The Project report describes a potentially feasible outcome. However, there are a number of unresolved, significant issues and an increased risk that a practical and acceptable outcome will increase operating cost and capital requirements and potentially decrease operational efficiency and project viability.
5.4.2.1 Access to Underground Coal Resources

Planned access to the underground coal resources is by drift. Alternative options to provide access to the underground mine include excavation of a box cut, or construction of vertical shafts.

Drifts are both cost efficient and provide reasonable access and egress for men, materials and equipment, and allow the transport of the mined coal to the surface by conveyor. The use of drift access is the most common method employed by Australian mines.

Xenith has developed the mine plan to provide drift access into the shallowest (50 m deep) underground resources in the Birthday Plains domain. This approach reduces initial capital expenditure requirements. The initial mining domain, whilst providing a thicker seam section, is relatively lower yield, albeit higher quality. Coal is extracted from the area for two years until the adjacent Airport area is accessed and mined. The Birthday Plains area is then mothballed for up to ten years, with mining scheduled to recommence in Year 13, in the final years of the life of the mine. This strategy requires the workforce to traverse the Birthday Plains area and operations in order to inspect and maintain the associated workings during this standby period.

BOYD has identified two potential alternative development options:

- Locate the initial underground drifts in the shallowest portion of the Airport domain. This would allow operations to travel faster on the surface to a point closer to the centroid of mine operations.

- Accelerate Birthday Plains domain extraction in preference to commencing mining in Airport East, as operating cost margins are greater due to the HCC coal produced from Birthday Plains (as compared to Airport East PCI coal). The additional capital required to access and to service Airport East could also be deferred.

A cost benefit analysis of alternative mining plans (scheduling) is recommended as part of the BFS process.

5.4.2.2 Spontaneous Combustion

The present data indicates that the adjacent seams, fine coal, faulting, elevated levels of sulphur, method of work using standing pillars, and areas of relatively shallow workings may increase the risk of a spontaneous combustion event. This risk is mitigated due to the predominant seam gas being carbon dioxide.

Sealing of the large panel void volumes has not been assessed by Bounty. BOYD considers that this may be problematic notwithstanding that the seam gas is carbon dioxide. Current industry practice to mitigate the risk of spontaneous combustion and
management of potentially explosive sealed atmospheres includes the use of remote source inertisation, using nitrogen generators, and/or the removal of personnel from the mine.

Tests regarding the potential for spontaneous combustion will need to be undertaken in the next phase of study.

5.4.2.3 Ventilation
The provision of adequate ventilation is critical in the management of workplace heat and humidity, and the mitigation of heat stress in a tropical climate.

Ventilation at Wongai is planned to be provided using a ventilation shaft and surface mounted fan. Multiple small cross section roads are planned, with more than four working areas required to be concurrently ventilated. Pillar sizes are relatively small, resulting in closely spaced cross-out entries and a high frequency of ventilation stoppages, providing leakage paths. The mine schedule indicates high rates of advance for both panel and mining area.

BOYD anticipates that the factors above will result in a complex, dynamic mine ventilation network. The network will be relatively high in resistance due to the small cross sectional area of the roadways. Panel sealing and panel inertisation will be frequent. Fan power requirements will be a significant cost to mine operations, with power being provided by diesel generators.

BOYD considers that studies to evaluate options and identify a suitable ventilation network strategy will be required early in the next phase of study.

5.4.3 Mine Output
Wongai is scheduled to produce at a relatively high output rate with the Mid-Case showing a nominal annual rate of 2.0 Mt ROM. This rate is achieved in mines, primarily in the US, with similar seam thickness, employing experienced workforce, and capable management, and utilising established, refined, robust systems of work.

BOYD considers that the Mid-Case mine output levels assumed by Bounty are achievable for a well-resourced, efficient, experienced mine operation. BOYD also considers that achieving these output rates will require the specific issues identified in this report to be assessed and actioned.

5.5 Coal Handling and Coal Preparation
A 400 tph CHPP will be designated and built utilising a conventional metallurgical coal flow sheet. Processing technology will include dense media cyclones, spirals and flotation. The plant will be fed by a front end loader from the ROM stockpile.
Surge bins are used to control product coal flow until the product has been conveyed to the jetty stockpile area. Coarse rejects will be dewatered using screens and conveyed to the rejects bin. Fine tailings will be fed to a thickener and the thickener underflow dried using a belt press filter prior to conveying to the same bin as the coarse rejects. Co-disposal of the combined rejects is planned with reject material initially trucked to a surface disposal area and then transported underground for disposal in mined out areas of the mine, following completion of the first mining panels.

Further detailed studies into the management and disposal of tailings and rejects are required in the next phase of study.

The materials handling and coal processing circuits and associated capital expenditure and operating costs have been developed in a concept study by Sedgman, which is provided as an appendix to the PFS. That study included estimates for appropriate additions to the design to address items specific to the climate and environmental sensitivity of the project location. These include covers over stockpiles, nib walls and collection drains to segregate coal affected water from the surrounding environment, and conveyor spillage control.

The plant design and costing was based on the following size distribution obtained from a small number of coal seam core samples obtained from boreholes where relatively high core loss was experienced:

<table>
<thead>
<tr>
<th>Circuit</th>
<th>Finest (%) ad</th>
<th>Nominal (%) ad</th>
<th>Coarsest (%) ad</th>
</tr>
</thead>
<tbody>
<tr>
<td>DMC</td>
<td>32</td>
<td>49</td>
<td>65</td>
</tr>
<tr>
<td>Spirals</td>
<td>56</td>
<td>44</td>
<td>30</td>
</tr>
<tr>
<td>Flotation</td>
<td>12</td>
<td>7</td>
<td>5</td>
</tr>
</tbody>
</table>

The proportion of flotation circuit feed appears lower than would typically be observed in a Queensland metallurgical coal plant. A risk exists that the proportion of fines is higher than assumed in the concept study (i.e., core loss resulted in understating the percentage of fine coal). This could result in increased operating costs to dispose of increased tailings quantities, reduction in planned feed rates, and a drop in yield.

BOYD recommends that further quality information, forming the basis of the CHPP circuit designs, be obtained from additional drilling, including large diameter boreholes. This will need to be obtained prior to the next phase of studies being undertaken.

In addition, the following issues need to be addressed in the next phase of analysis:

- Coal flow and stockpile sizing.
• The high levels of sulphur in the coal are expected to be lowered following
processing. However, the impact on CHPP design is presently unknown.

• The requirement and management of process water has not been determined in
the present study. An understanding of the process water balance is important
due to the potential supply constraints in this remote region, environmental
management requirements, and infrastructure footprint restrictions.

• Costs for the surface rejects disposal site and water management infrastructure.

5.6 Coal Transhipment
Wongai is located very close to the coast. However, its remote location has resulted
in Bounty adopting a transshipment strategy in order to get product coal to market.
Transhipment processes are utilised in a number of other mining areas around the
world and involves the loading of coal into small vessels, such as barges or self-
propelled vessels, transport of these vessels to a designated trans-shipment area,
and transfer of the coal from the small vessel into larger ocean going vessels.
Bounty intends to load coal into self-propelled, self-unloading Transhipment Shuttle
Vessels (TSV), transport the coal to a transhipment area located 20 km (nominally)
north-east of the Flinders Group of Islands, and then transfer the coal into 80,000
DWT ocean going vessels. A proposal has been provided to Bounty by an
international provider of these services, Canadian Shipping Lines (CSL).

The proposal includes construction of two assisted propulsion TSV’s with a capacity
of 20,000 DWT each, supported by one tow tug. To eliminate coal spillage and
fugitive dust emission, the TSV’s will be fully enclosed with a single point self-loading
system and an under-deck coal distributing/reclaiming conveyor system.

The TSV’s will be loaded using a jetty located beyond the northern end of EPC 2334
(see Figure 3.1). The laden draft of each TSV will be 6 m to 6.5 m; the jetty will need
to be sited to provide at least 8.0 m water depth at lowest astronomical tide
conditions. The nominal capacity of the jetty loading conveyor is 4,000 t/h, which is
sufficient to load a TSV in approximately six hours.

The transhipment rate to load an ocean going vessel is planned to be 3,000 t/h.

Bounty’s assumptions underpinning the PFS are that both TSV’s will be loaded prior
to arrival of the ocean going vessel, and each will be refilled once during the loading
process to complete the nominal 80,000 DWT shipment. At a nominal annual output
of 2.0 Mtpa product, two shipments to customers per month will be required.

The design, construction and delivery of the TSV’s may require up to 36 months,
which needs to be considered in the overall project schedule.
The favourable location of the project in proximity to the coast (i.e., no rail component), results in the overall coal transport cost being lower than comparable operations.

BOYD considers that the proposed transhipment process, infrastructure and equipment proposed are technically reasonable. Similar transhipment processes are in operation around the globe. However, the proposed transhipment process will require environmental approval and is likely to face significant scrutiny during the approvals process due to the remote location of the site and the proximity of the Great Barrier Reef Marine Park.

5.7 Additional Studies Required

The following option analysis and trade off studies are recommended to be undertaken prior to commencing the BFS due to their impact on project feasibility, the potential to impact matters of environmental significance and to promote a successful and timely approval of an Environmental Authority:

Critical
- Underground geotechnical mine design study (including pillar sizing and roof spanning capability, etc., in order to confirm place change feasibility).

Essential
- Location of some activities and mine infrastructure – stockpiles, dams, waste.
- Rejects management.
- Equipment selection and supply.
- Dilution by out of seam mining and partings.
- Mine layouts and schedules.
- Ventilation.
- Detailed planning and analysis.
- Power supply.
- Water supply - groundwater.
- Spontaneous combustion.
- Coal Flow and stockpile assessment

Following these assessments, a preferred development strategy should be determined, enabling a clear BFS scope of work, having minimal options analysis and providing refinement of accuracy on projections, schedules and cost estimates.

Following this page are:

Figures
- 5.1: Resource Limits and Mining Domain
- 5.2: PFS – Proposed Mine Schedule
FIGURE 5.1
MAP SHOWING
RESOURCE LIMITS AND MINING DOMAINS
WONGAI COKEING COAL PROJECT
LAURA COAL BASIN
Queensland, Australia

Prepared For
BOUNTY MINING LIMITED

John T. Boyd Company
August 2017
Scale 1 : 80,000

Map sourced from: Wongai Coal Project, Underground Mining Concept Study, 2016
6.0 REVIEW OF OPERATING COSTS AND CAPITAL EXPENDITURE

6.1 Operating Costs

BOYD assessed the PFS operating cost estimates against our in-house database and industry experience, in the context of a smaller, remote mining operation. Our review of operating costs noted the following issues which should be addressed prior to BFS preparation:

- Labour costs were built up from first principles and are relatively low compared to present industry levels. The labour rates utilised may be insufficient to attract and retain capable, skilled and dedicated underground coal personnel to work in a remote location.

- Workforce numbers and the current employment and shift strategy appear insufficient to efficiently support the equipment and infrastructure required to maintain operations on a 24x7 basis in a remote location. BOYD considers that additional personnel may be required for technical support, management and administration, purchasing and inventory management roles. This will result in higher overheads cost. BOYD estimated that an additional 20 personnel daily may be required for management and supervision, contractors and vendor support. This will add additional costs for air transport, airstrip dispatch, accommodation and labour.

- Direct mining costs are considered to be low and not reflective of the high advance rates and related activities required due to the thin seam section, high level of ventilation, and conveyor infrastructure and services required, for the production levels scheduled.

- Rejects disposal costs should be reassessed. The proposed option of disposal of rejects in mined out underground workings will require costs to slurry and pump rejects, and recover decant water.

- Cost savings such as “bell out” or “secondary extraction” will moderate costs with reductions in installed roof support. However, operation and maintenance of additional equipment, such as mobile roof supports, may be required to mitigate increased strata risk.

- Freight and personnel transport flexibility will depend on barging, road and air transport/couriers. Reassessment of logistical issues, costs and inventories.

- Costs of services – freight, power supply, water and waste management were included but minimal supporting detail was provided. These costs should be reassessed.

BOYD recommends that further evaluation and more detailed cost estimation, initially in the option analysis followed by the feasibility study, will result in increased confidence in operating costs.
6.2 Capital Expenditure

The capital expenditure schedule provided to BOYD as part of the PFS was developed at a high level. Our review of capital expenditure noted the following:

- The requirement for ongoing exploration, current cost of ownership and related activity, EIS preparation, and BFS costs are not apparent. Owner’s costs were not provided. These would include an allocation for items such as legal reviews, contract preparation, insurances, and other corporate activities.

- Pre-production costs, project team, first fill inventories do not appear to have been included.

- The required mining equipment is unconventional compared to that utilised currently in Australia. Additional capital may be required to acquire statutory approval and the specialized equipment necessary for underground mining at the reduced working height. A bridge conveyor system is required and whilst an estimate from Stamler system is not shown, an alternate system - a JOY FCT - should be budgeted at A$22M. These are not off-the-shelf items and specialist support may be required, and supply delays may occur. Mobile roof supports may also be required to support second workings. The capital estimate may be understated. This should be reassessed in the next phase of work.

- Additional capital expenditure will be required during the life of the project for aspects such as: driveage of drifts between mining domains, installation of an additional ventilation shaft, acquisition of a power tram unit to relocate CMs underground, installation of additional services boreholes, additional cabling and driveheads as the mine footprint expands over the 15 year mine life. Whilst allowance has been made, this assumption should be re-evaluated in the next phase of work.

- Equipment must be overhauled periodically over the life of the project. Whilst overhaul costs were included, a replacement unit did not appear to be included to maintain operations.

- Capital expenditure requirements will be reduced by the proposed use of operating leases for the CHPP and transhipment systems. This has resulted in an increase to operating costs, albeit at reduced capital cost.

- The studies supporting the PFS noted numbers of exclusions. These appear to have been included in the JukesTodd schedules. Matters including supply of concrete and gravel to the remote Wongai site, and freight costs could increase costs substantially.

- A number of cost saving reductions shown as global reductions are noted. However, in the absence of supporting explanations, these identified reductions are difficult to fully understand.

- Capital schedules exclude contingency. Recognising that the studies conducted to date are at a concept level, BOYD considers it prudent to include an allowance for contingency of 30% in capital expenditure estimates.

- BOYD considers that the underlying assumptions should be re-assessed in the next phase of work.
7.0 REVIEW OF ENVIRONMENTAL APPROVALS AND PROJECT TIMELINES

7.1 Tenure and Environmental Approvals

7.1.1 Tenure
The proposed coal mining and processing activities for Wongai will be undertaken within EPC 2334. The EPC expires on 13 December 2021, as shown on the Queensland Government website "MinesOnlineMaps". The website also shows that the EPC has been reduced in size from 52 sub-blocks, as stated in the PFS, to 50 sub-blocks. One of the additional sub-blocks relinquished, sub-block 2019 U, is adjacent to the site of the proposed CHPP.

The coal resource area of interest within EPC 2334 is located within freehold land held by the Kalpowar Aboriginal Lands Trust (Trust). The Trust owns most of the land within EPC 2334, and has a 12.5% holding in the Project. The northern half of the EPC overlaps the Kalpowar Nature Reserve.

7.1.2 Approvals
The Project is close to the Great Barrier Reef Marine Park and surface water runoff from the project area will flow to either Cape Melville National Park, or the Marrett River which is part of the Princess Charlotte Bay fish habitat area. The proposed transhipment jetty and transhipment area is located within the Great Barrier Reef Marine Park.

The boundary of EPC 2334 does not reach the coastline and the final portion of the proposed conveyor system to the transhipment jetty is located beyond the tenement. Bounty will need to apply for a Mining Lease for Transportation under the Mineral Resources Act 1999 and/or the Sustainable Planning Act 2009.

A number of approvals are required under Commonwealth and Queensland Government legislation. Environmental approvals will be required in accordance with the Environment Protection and Biodiversity Conservation Act 1999 and the Environmental Protection Act 1994. Mining lease approvals will be required in accordance with the Mineral Resources Act 1999. Bounty has identified a number of other applicable legislation under which approvals for the Project will need to be obtained.

BOYD considers that the major environmental risks that may impact on project approval are:

- The potential for coal dust or spillage from conveyors and the transhipment process to enter the Great Barrier Reef Marine Park or nearby Cape Melville National Park.
The potential for contaminated surface water flows or groundwater to enter these same areas.

There is a moderate risk that the project will not ultimately receive environmental approval.

### 7.2 Project Timeline

Wongai is presently in the early stages of project development. A number of key approvals are required: an Environmental Impact Study (EIS) and Environmental Authority (EA), followed by Mining Lease (ML) approval. In addition, more detailed studies culminating in a BFS of the Project are required in order to obtain financial approval to proceed to project execution.

The PFS has highlighted a number of key issues that need to be addressed to enable the BFS to be undertaken in a timely and cost effective manner, and to enable an EIS to be prepared. This work will be underpinned by additional geological exploration and Bounty has advised BOYD that a program is planned for Q3 2017.

Bounty has advised that two complete annual cycles of environmental field surveys will be undertaken and that this activity has not commenced. Ensuring that thorough environmental studies are undertaken should enable timely approval assessments to be received, and may prevent the need for supplementary environmental studies to be undertaken. It should also support the resolution of issues relating to approval of the EIS and EA, and therefore ML approval.

Project milestones as indicated by Bounty, as well as BOYD’s projections, are summarised in the table below:

<table>
<thead>
<tr>
<th>Description</th>
<th>Bounty PFS - 2016</th>
<th>BOYD - 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Renewal of EPC</td>
<td>Oct 2016</td>
<td>Jul 2017</td>
</tr>
<tr>
<td>Completion of BFS</td>
<td>Jul 2017</td>
<td>Jul 2018</td>
</tr>
<tr>
<td>Environmental Approval granted</td>
<td>Aug 2019</td>
<td>Jul 2022</td>
</tr>
<tr>
<td>Grant of mining lease</td>
<td>Aug 2019</td>
<td>Oct 2022</td>
</tr>
<tr>
<td>Joint Venture commit to project development</td>
<td>Sep 2019</td>
<td>Nov 2022*</td>
</tr>
<tr>
<td>Funding commitment for project development</td>
<td>Feb 2020</td>
<td>Apr 2023*</td>
</tr>
<tr>
<td>Construction commencement</td>
<td>May 2020</td>
<td>Jul 2023*</td>
</tr>
<tr>
<td>First shipment of coal</td>
<td>Nov 2022</td>
<td>Jan 2025*</td>
</tr>
</tbody>
</table>

Note: * assumes PFS 2016 projected durations.

BOYD’s analysis of thirty (30) Queensland ML approvals through the EIS process indicates a median duration of 41 months from date of submission to receipt of lease approval. There is no indication that this period will reduce.
BOYD considers that the proposed timeline for mining lease approval of 23 months, estimated as two months following completion of the BFS, and representing the EIS submission date as indicated by Bounty, to be optimistic. Given the environmentally sensitive location of Wongai and the requirement for separate approval of barging operations within the Great Barrier Reef Marine Park, it is likely that Wongai will encounter objections when public consultation occurs as part of the approvals process. As a best case, BOYD opines that 48 months will be required in order to obtain all project approvals and the mining lease may be granted by October 2022. This will result in a delay of more than three years to the commencement of construction.
8.0 REVIEW OF KEY RISKS

8.1 Risk Assessment Methodology

A qualitative, desk top technical assessment was prepared by BOYD to consider events with the potential to cause significant project and environmental harm. To evaluate probable project risk and profiles, we utilised a Risk Management Standard, AS/NZS ISO 31000: 2009 (which has broad usage in the Australian mining industry), the Department of the Environment, Water, Heritage and the Arts (DEWHA) Environment System Tool\(^1\) and referred also to a Worksafe Victoria document for a major hazard facility\(^2\).

Only matters that presented significant project financial risk or environmental harm were identified. A summary and definitions of the generic criteria used in this review is provided in the text that follows.

Other matters which may result in environment harm at Wongai include: dust, noise, ecological management, weed management, groundwater contamination, acid water, tailings release, post closure failure to adequately rehabilitate, and unauthorised clearing of endangered flora. However, these were generally considered to be of lower significance.

Events causing environmental harm that occur away from the approved mine area related to coal chain logistics activities were included. We consider that notwithstanding they may not be within the control of the mine operations, and environmental responsibility would lie with the service provider, the direct and unique relationship with the service impact Wongai. These events may include:

- Disposal of waste material with low but present environment risk (i.e., radiation sources and basalt lined pipes, hydrocarbons, tailings).
- Contamination of environment resulting from damage to freight carrier.
- Damage to the Great Barrier Reef from passage of a coal carrier, spillage or loss of cargo.

Significant events were determined as those issues that were considered to have a High to Extreme Risk Category, using the criteria outlined below.

---

\(^1\) www.environment.gov.au/system/files/pages/7d10aa8e-1483.../ems-tool.doc, accessed June 2017
The generic criteria and risk matrix descriptors used are shown in the following tables:

<table>
<thead>
<tr>
<th>Consequence</th>
<th>Generic Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Catastrophic</td>
</tr>
<tr>
<td></td>
<td>Widespread, irreparable environmental damage; loss of human life or long term human health effects; national attention; serious litigation; over $10M to manage consequences.</td>
</tr>
<tr>
<td>4</td>
<td>Major</td>
</tr>
<tr>
<td></td>
<td>Widespread, medium to long term impact; serious human health impacts; state-wide or national attention; major breach of legal requirements; major disruption to operations; Targets reputation badly tarnished; $1M to &lt;$10M to manage consequences.</td>
</tr>
<tr>
<td>3</td>
<td>Moderate</td>
</tr>
<tr>
<td></td>
<td>Localised medium to long term impact; moderate human health impacts requiring medical treatment; regional media attention; moderate breach of legal requirements with fine; $0.1M to &lt;$1M to manage consequences.</td>
</tr>
<tr>
<td>2</td>
<td>Minor</td>
</tr>
<tr>
<td></td>
<td>Localised short to medium term impact; minor and reversible human health impacts treatable with first aid; negative publicity from local media; minor breach of legal requirements; $0.05M to $0.1M to manage consequences.</td>
</tr>
<tr>
<td>1</td>
<td>Insignificant</td>
</tr>
<tr>
<td></td>
<td>Limited impact to a local area but no long term effects; concern or complaints from neighbours; no injury to people; minor technical nonconformity but no legal nonconformity; less than $0.5M cost to manage consequences.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Consequence</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insignificant</td>
<td>E</td>
<td>D</td>
<td>C</td>
<td>B</td>
<td>A</td>
</tr>
<tr>
<td>Minor</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catastrophic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Consequence</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is expected to occur in most circumstances</td>
<td>E</td>
<td>Almost Certain</td>
<td>1E</td>
<td>2E</td>
<td>3E</td>
<td>4E</td>
</tr>
<tr>
<td>Will probably occur in most circumstances</td>
<td>D</td>
<td>Likely</td>
<td>1D</td>
<td>2D</td>
<td>3D</td>
<td>4D</td>
</tr>
<tr>
<td>Might occur at some time</td>
<td>C</td>
<td>Possible</td>
<td>1C</td>
<td>2C</td>
<td>2C</td>
<td>4C</td>
</tr>
<tr>
<td>Could occur at some time</td>
<td>B</td>
<td>Unlikely</td>
<td>1B</td>
<td>2B</td>
<td>3B</td>
<td>4B</td>
</tr>
<tr>
<td>May only occur in exceptional circumstances</td>
<td>A</td>
<td>Rare</td>
<td>1A</td>
<td>2A</td>
<td>3A</td>
<td>4A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Risk Matrix Result</th>
<th>Generic Management Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>Extreme 4E, 5D, 5E</td>
<td>Immediate intervention required to eliminate or reduce this risk</td>
</tr>
<tr>
<td>H</td>
<td>High 2E, 3D, 3E, 4C, 4D, 5B, 5C</td>
<td>Eliminate or reduce risk to a lower level by the introduction of control measures.</td>
</tr>
<tr>
<td>S</td>
<td>Moderate 1E, 2D, 2C, 4B, 5A</td>
<td>Corrective action required. Attention needed to eliminate or reduce risk</td>
</tr>
<tr>
<td>M</td>
<td>Low 1C, 1D, 2B, 2C, 3A, 3B, 4A</td>
<td>Corrective actions to be determined.</td>
</tr>
<tr>
<td>L</td>
<td>Very Low 1A, 1B, 2A</td>
<td>Monitor and manage by corrective action where practicable.</td>
</tr>
</tbody>
</table>
8.2 Key Risks
BOYD identified the following as key risks areas:

2. Geotechnical conditions.
4. Personnel – availability and retention of capable and skilled people.
5. Weather/Working Conditions
7. Environment Impacts

Matters including coal price realization and exchange rates were not included because they are considered to be non-technical in nature and beyond the control of the Project.

8.2.1 Resource Knowledge
Resource recovery may be impacted by:

- Further faulting.
- Seam washouts.
- Lower than expected coal recovery.
- Roof instability.
- Additional seam partings.
- Quality variations across the deposit with core recovery relatively low due to friable coal and cleating.

Assessment of Risk Category: High (4C)

Risk Mitigation: Further exploration and related testing will reduce these risks. Additional seam recovery utilizing optimal pillar design and “bell out” into the barriers will also mitigate the risk.

8.2.2 Geotechnical Conditions
Wongai assumes high production rates will be achieved based on the successful use of place changing. However, the ability to achieve high rates of advance require deep cuts which are dependent upon the ability of the immediate roof strata to support wide spans and stand unsupported for a number of hours. At present, geotechnical characteristics for strata are not available. It is possible that the strata will not be suitable for place changing.
Assessment of Risk Category: High (5C)

Risk Mitigation: This risk can be mitigated by appropriate exploration, testing and geotechnical study to assess site specific conditions. Reduced cut distances could be mitigated by utilization of additional roof bolting units and personnel.

8.2.3 Water Supply
Water sources and requirement for mining and processing have not been identified. Regional supplies are not available. Whilst annual rainfall is high, it is seasonal. Boreholes have indicated significant water inflows. Inadequate supply and management of mine waste water will impact project feasibility.

Assessment of Risk Category: High (4C)

Risk Mitigation: This risk could be mitigated by appropriate assessments of site water generation and balance studies.

8.2.4 Personnel – Availability And Retention
The planned mining method is relatively specialized, and the targeted production is high relative to the seam thickness. A skilled and diligent workforce will be needed to operate on a self-sustaining basis. Retaining a stable workforce will be compromised by the mine’s location which is remote from significant infrastructure, such as centres of population, industrial standards of water and electricity supply and engineering and maintenance services. The management, workforce and service providers will access the site on a fly-in fly-out basis and be accommodated on site. Competent management and systems, and a motivated workforce will be required to conduct activities that are relatively labour intensive and demanding.

Risk exists that sufficient skilled and capable personnel will not be available to be employed and then retained at the remote mine site.

Bounty has planned to supplement their workforce with experienced operators from the US.

Assessment of Risk Category: High (4C)

Risk Mitigation: An independent assessment of industry benchmarks and human resource management is recommended to mitigate this risk.

8.2.5 Weather/Working Conditions
Bureau of Meteorology (BOM) data indicates that an average of 4.7 cyclones occur in Queensland per year of varying intensity. Tropical lows and cyclones are shown to develop in the Coral Sea or Gulf of Carpentaria and migrate across to either re-form or dissipate in the Coral Sea. Typically they deliver widespread heavy rainfall and
flooding, and may be associated with bands of destructive winds. Restrictions to road, sea and aircraft movements, port closures and infrastructure damage (including dams) are common during and following these events.

BOM records from 1942 at Cooktown indicate that the average annual rainfall in the area is 1,696 mm with maximum daily rainfall reaching 362 mm. If not properly designed, the stability of dams and stockpile could be compromised.

Climatic issues will affect access to and from site, operating calendars and workplace conditions for personnel. This includes heat stress as well as physical plant issues, such as stockpile stability.

Assessment of Risk Category: High (3D)

Risk Mitigation: Further assessment of activities affected by weather and climate is required to determine the appropriate mitigation strategies.

8.2.6 Permitting Delays
The Wongai Project and related surface facilities are located close to the Great Barrier Reef Marine Park, whilst the associated transhipment jetty and transhipment process will operate within the Park. The Park is considered of high environment significance and cultural value. Receipt of two approvals is likely to be required for the mine operations and the transportation of mined coal.

BOYD’s analysis of 30 Queensland mining lease approvals through the EIS process shows a median duration of 41 months. In addition, there is no indication durations are decreasing with government efforts to reduce “green tape”. Given the environmentally sensitive location of Wongai, it is likely that Wongai will encounter objections wherever public consultation is required in the approval process, and the claims are getting more sophisticated. A history also now exists of approvals for mine expansions being rejected in more environmentally benign areas in Australia.

Assessment of Risk Category: Delay – High (4D)
Project Not Approved – High (5C)

Risk Mitigation: This risk could be reduced by appropriate resourcing of environment studies, a comprehensive assessment of planning options, and the timely finalization of mine plans. These steps will enable the EIS report to be delivered is sufficient detail to preclude preparation and delivery of a supplementary report. Key environment management criteria should be identified by consulting with stakeholders, planning requirements and guidelines, and then integrated into the project plan.
8.2.7 Environmental Impacts

Wongai is located in an environmentally sensitive region of tropical Australia with significant cultural heritage. It is adjacent to the Great Barrier Reef Marine Park, a fish habitat and two National Parks.

This is a risk to both the mining and transportation facilities, during project construction period and operations. Activities will be required to be consistently conducted to a high standard. Whilst environment management is expected to be high, climatic issues (high rainfall, cyclones) increase the likelihood of damage.

Assessment of Risk Category: High (4C)

Risk Mitigation: Mitigation requires: (1) prudent assessment, design and construction strategies and schedules, (2) appropriate equipment and infrastructure, and (3) effective management systems.
9.0 VALUATION ASSESSMENT

9.1 Valuation Methods
In valuing a coal deposit, it is common that one or more of the following approaches are used. BOYD recommends that where information is appropriate and available, multiple approaches are used which can then be compared as a cross check on the valuations developed.

9.1.1 Market Approach/Comparable Sales
This method of valuation involves the comparison of a subject property with similar recent transactions. It assumes an arm’s length transaction is completed between two willing parties, neither party is acting under duress and both parties are equally informed. Recent sales are used to avoid the application of escalators and adjustments for changed market conditions which are difficult to apply. Ideally, the comparison would be of properties having similar geological characteristics, in the same general locality and at a similar stage of exploration activity. This is not always the case, and the required information may not be available. Data from other sales are also useful to provide insight into the level of market activity.

However, no two coal properties are the same and the following issues generally need to be considered when comparing properties: location of the property; mining method (e.g. underground or surface), coal type (e.g. coking, thermal, other), coal quality (e.g. volatile matter, specific energy, ash, etc), proximity to infrastructure (e.g. road, rail, port), and deposit knowledge, geology, etc.

9.1.2 Cost Approach
This approach considers the historical costs expended by an organisation, such as the acquisition costs for the coal rights and/or land plus the depreciated cost of improvements made post acquisition, as well as expenditure on exploration and development activities. This approach relies on developing an assessment of the extent to which past expenditure is likely to result in a target resource being defined.

9.1.3 Income Approach
The income approach is based on the appraiser’s projection of income to be generated by existing or planned mining facilities. It uses a discounted cash flow (DCF) operational analysis to estimate the net present value (NPV) of the projected cash flows. Future annual capital and operating costs, and revenues are estimated for the projected mine life and discounted back to the date of valuation using an appropriate discount rate.
It is usual for this type of analysis to be used for projects that have a high degree of understanding of geology, development issues, and costs. The subject property is either in production or has a near term development program, (i.e., scheduled to begin development generally within 3 to 5 years. DCF analysis is highly sensitive to the inputs utilised and the level of information required is generally of a detailed nature.

### 9.2 Application of Valuation Method

In determining an appropriate method to value the Wongai Project, the following issues are pertinent:

- Wongai has reported the following resource quantities for the Bathurst Seam in accordance with the JORC Code:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Quantity (Mt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured</td>
<td>-</td>
</tr>
<tr>
<td>Indicated</td>
<td>20.2</td>
</tr>
<tr>
<td>Inferred</td>
<td>69.8</td>
</tr>
<tr>
<td>Total</td>
<td>90.0</td>
</tr>
</tbody>
</table>

- Further exploration programs are required to increase the confidence in the resources, and Bounty has planned for that to be undertaken.

- The Mid-Case life of mine schedule in the PFS is based on the following quantities as classified in accordance with the JORC Code:

<table>
<thead>
<tr>
<th>JORC Code Resource Classification</th>
<th>Quantity Scheduled (Mt)</th>
<th>Percentage Of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indicated</td>
<td>8.1</td>
<td>27</td>
</tr>
<tr>
<td>Inferred</td>
<td>19.7</td>
<td>67</td>
</tr>
<tr>
<td>No Classification</td>
<td>1.8</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td>29.5</td>
<td>100</td>
</tr>
</tbody>
</table>

- Whilst Bounty has completed a PFS for the Project, BOYD considers that critical elements of the mine schedule, operating costs and capital costs are at a concept level of study (see Chapters 5 and 6).

- BOYD’s analysis of the project and approvals timeline (see Chapter 7) indicates that Wongai will commence construction in approximately mid-2023, or six years from the date of this report.

Taking the preceding factors into account, BOYD opines that Comparable Sales is the appropriate valuation method to use in developing a valuation assessment of Wongai.

A check that the valuation assessment is reasonable was made using the Geoscientific Rating method (Modified Kilburn), Details of the Geoscientific Rating method are provided in Section 9.4.
9.3 Application of Comparable Sales Method

BOYD reviewed coal development project sale transactions that occurred in the last three years focusing on coal basins located in Queensland and New South Wales. The primary criteria upon which the projects were compared, and the factors used to adjust and weight them are summarised below:

- **Recent sales**: These were considered on a 100% equity basis with transaction value in Australian dollars understood to be that as at the date of the announcement.

- **Mining method**: An adjustment was made to allow for differences in project operating costs and associated risks due to probable mining method (surface compared to underground). A factor of 1.0 was applied for open cut potential, 0.8 for open cut and underground, and 0.6 for projects with only underground potential.

- **Location**: Adjustments were made to allow for project location differences particularly access to export ports and rail capacity, infrastructure and services. Each of the comparable properties, excepting North Surat, are within developed coal basins with nearby access to rail that connects to existing markets and services. BOYD considered that Wongai’s remote location was offset due to it being adjacent to the vessel transfer location and planned self sufficiency in infrastructure and operations. We applied an adjustment factor of 1.0 generally to each of the comparable transaction multipliers.

- **Coal quality**: Coal quality variations were compared with an adjustment made based on pricing relativity between reported indices. The ratio between the respective product indices and the Newcastle 6,300 kcal/kg were applied. These ratios are shown below:

<table>
<thead>
<tr>
<th>Coal Type</th>
<th>Price Ratio to Newcastle 6,300 kcal</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCC Peak Downs</td>
<td>1.82</td>
</tr>
<tr>
<td>PCI</td>
<td>1.39</td>
</tr>
<tr>
<td>Semi-Soft Coking Coal</td>
<td>1.23</td>
</tr>
<tr>
<td>Thermal</td>
<td>1.00</td>
</tr>
</tbody>
</table>

- **Geological confidence**: Adjustments were made to allow for different levels of geological confidence. These were determined using the JORC resource classification and the relative weighting of measured and indicated resources to the total resource tonnage.

- **Mineability**: Adjustment was made to reflect potential operational efficiency –e.g. thick seam compared to multiple thin seams.

<table>
<thead>
<tr>
<th>Deposit Description</th>
<th>Mineability Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thick seams &gt;3 m</td>
<td>1.00</td>
</tr>
<tr>
<td>Split, thick seams</td>
<td>0.95</td>
</tr>
<tr>
<td>Multiple seams &lt;3 m</td>
<td>0.85</td>
</tr>
<tr>
<td>Seams &lt;3 m, splitting</td>
<td>0.75</td>
</tr>
</tbody>
</table>
- **Pricing and Foreign Exchange**: Adjustment for changes in both foreign exchange US$/A$ and coal price indices (reported by McCloskey Coal Report and the Reserve Bank of Australia) between the announcement date of the comparable transaction and the date of valuation – May 2017.

More recent transactions of undeveloped properties are limited to mainly open cut projects targeting PCI and thermal coals. Industry confidence has varied considerably as reflected in coal realisation prices and transaction values per tonne. In the 2015 to 2017 period, a number of active mines have been presented for sale and transactions failed to materialise. Callide Mine and Issac Plains mines have been sold, albeit at a nominal transaction value, $1. The transaction value was in reality the transfer of rehabilitation liability.

BOYD considered the most recent and relevant development project sales to be:

- MDL 612,
- North Surat
- AQC
- Wotonga North
- Olive Downs
- Dingo West
- Mt Pleasant.

Other recent transactions such as Callide, Isaac Plains and the Coal and Allied assets were not considered as these are operating mines with complex assets and substantial existing liabilities that are not publicly available.

The comparable transactions used in this assessment are summarised by coal type, probable mining methodology, transaction date and transaction multiple (per tonne of total resource and per nominal tonne), below:

<table>
<thead>
<tr>
<th>Date</th>
<th>Asset</th>
<th>Mine Method</th>
<th>Coal type **</th>
<th>Transaction A$ Million (100%)</th>
<th>Resource (Mt)</th>
<th>Transaction multiple ($/t)</th>
<th>Total Resource tonne</th>
<th>Nominal Resource tonne*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan-14</td>
<td>MDL 162</td>
<td>OC</td>
<td>SSCC,Th</td>
<td>70</td>
<td>255</td>
<td>0.27</td>
<td>0.47</td>
<td></td>
</tr>
<tr>
<td>Nov-14</td>
<td>North Surat</td>
<td>OC</td>
<td>Th</td>
<td>49</td>
<td>746</td>
<td>0.07</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td>Jul-15</td>
<td>AQC</td>
<td>OC/UG</td>
<td>PCI/Th</td>
<td>21</td>
<td>125</td>
<td>0.17</td>
<td>0.31</td>
<td></td>
</tr>
<tr>
<td>Jul-15</td>
<td>Wotonga North</td>
<td>OC</td>
<td>SSCC</td>
<td>7</td>
<td>14.5</td>
<td>0.48</td>
<td>0.57</td>
<td></td>
</tr>
<tr>
<td>Oct-15</td>
<td>Dingo West</td>
<td>OC</td>
<td>PCI</td>
<td>6</td>
<td>91.1</td>
<td>0.07</td>
<td>0.44</td>
<td></td>
</tr>
<tr>
<td>Jan-16</td>
<td>Mount Pleasant</td>
<td>OC</td>
<td>Th</td>
<td>319</td>
<td>811</td>
<td>0.39</td>
<td>0.45</td>
<td></td>
</tr>
<tr>
<td>May-16</td>
<td>Olive Downs</td>
<td>OC</td>
<td>SSCC,Th</td>
<td>87</td>
<td>813</td>
<td>0.11</td>
<td>0.16</td>
<td></td>
</tr>
</tbody>
</table>

* Value per Nominal Resource Tonne is derived by assigning 85% of the overall transaction value to the combined Measured and Indicated Resource quantity, and 15% of the overall transaction value to the Inferred Resource quantity.

** HCC - hard coking coal, SSCC - semi soft coking coal, PCI - pulverised coal injection, Th - thermal

A description of the key deposit characteristics of the comparable transactions is also provided below.
9.3.1 MDL 162
Wesfarmers acquired a 100% ownership in MDL 162 from Peabody Energy in 2014. The transaction was made for A$70M. The MDL 162 is located near Blackwater in Central Queensland and is adjacent to Wesfarmers’ Curragh operation. The acquisition of MDL 162 was expected to extend Curragh’s mine life and provide further options to optimise mine operations. Coal seams belonging to the Rangal Coal Measures make up the resource base within the tenement. The seams within the tenement include the Cancer, Aries, Castor, Pollux, Orion and Pisces seams, each ranging in thickness from 0.20 m to greater than 4.0 m. These are the same seams mined at the Curragh operation. The potential open cut mine is expected to produce a semi soft coking coal and a thermal product, similar in quality to the coal products of Wesfarmers Curragh Mine.

A summary of the MDL 162 reported resources and reserves at the time of the transaction are provided below:

<table>
<thead>
<tr>
<th>Project</th>
<th>Resources</th>
<th>Measured</th>
<th>Indicated</th>
<th>Inferred</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDL 162</td>
<td></td>
<td>74</td>
<td>86</td>
<td>95</td>
<td>255</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project</th>
<th>Reserves</th>
<th>Proved</th>
<th>Probable</th>
<th>Total</th>
<th>Total Marketable</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDL 162</td>
<td></td>
<td>38</td>
<td>29</td>
<td>67</td>
<td>49</td>
</tr>
</tbody>
</table>

9.3.2 North Surat
The sale of the Northern Surat Assets comprised of three properties: Taroom, Collingwood and Woori, all located in the Northern Surat Basin. In November 2014, New Hope Coal reached agreement with Cockatoo Coal Limited (Cockatoo) to acquire their 51% stake in the North Surat Joint Venture (NSJV) for A$25M.

Coal from the Collingwood and Taroom tenements was assumed to be able to be sold on a raw basis, while Woori was assumed to be a washed product. Following is the estimated average coal quality for each property:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Collingwood</th>
<th>Taroom</th>
<th>Woori</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ash</td>
<td>%</td>
<td>17.0</td>
<td>21.0</td>
<td>9.4</td>
</tr>
<tr>
<td>Volatile Matter</td>
<td>%</td>
<td>38.2</td>
<td>37.9</td>
<td>NA</td>
</tr>
<tr>
<td>Fixed Carbon</td>
<td>%</td>
<td>33.8</td>
<td>33.0</td>
<td>NA</td>
</tr>
<tr>
<td>Total Sulphur</td>
<td>%</td>
<td>0.4</td>
<td>0.3</td>
<td>NA</td>
</tr>
<tr>
<td>Specific Energy</td>
<td>MJ/t</td>
<td>23.8</td>
<td>22.5</td>
<td>28.2</td>
</tr>
<tr>
<td>HGI</td>
<td></td>
<td>NA</td>
<td>40.0</td>
<td>NA</td>
</tr>
</tbody>
</table>

Collingwood
Collingwood is located 160 km from the railhead at Wandoan, and construction of the 214 km long Surat Basin Rail (SBR) system is required to connect with the existing rail system from the township of Banana to the port of Gladstone. BOYD assumed an average distance of 90 km for rail from the individual properties to SBR.
Collingwood has the following reported resources: 80 Mt Measured, 80 Mt Indicated, and 69 Mt Inferred.

Taroom
Taroom is located 5 km from the township of Taroom and 90 km southwest of the railhead at Theodore.

Taroom has 158 Mt of Measured Resource, 149 Mt of Indicated Resource, and 126 Mt of Inferred Resource.

Woori
Available public domain coal quality information¹ for this project was limited to a reported washed coal product ash of 9.4% (air dried basis).

Cockatoo Coal reported 84 Mt of Measured resources for Woori.

The average value per tonne of resource was calculated by BOYD as $0.10 per tonne for the three tenements.

9.3.3 Australian Pacific Coal (AQC)
In July 2015, AQC issued a share placement which raised a total of A$13.2M with shares sold to two of the company’s cornerstone investors; Bentley Resources, and Trepang Services. The placement increased the holding of each of these investors from 10.6% to 42.5% respectively.

AQC has a portfolio of 20 EPC’s in Queensland. A further 13 EPC applications are pending approval. The Cooroorah Project is AQC’s most advanced property and has an estimated resource of 125 Mt. The resource is located in the Rangal Coal Measures, 17km from Blackwater in the Bowen Basin and is interpreted to produce a PCI quality coal. A summary of the reported resources is provided in the table below:

<table>
<thead>
<tr>
<th>Project</th>
<th>Measured</th>
<th>Indicated</th>
<th>Inferred</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooroorah</td>
<td>-</td>
<td>69.6</td>
<td>55.3</td>
<td>124.9</td>
</tr>
</tbody>
</table>

The resources identified at Cooroorah are contained within four seams that lie at depths between 240 m and 530 m below the surface. There are no outcrops or subcrops within the tenement. Any future mining of the deposit will be by underground methods.

¹ Cockatoo Coal Limited, ASX announcement, 5 August 2010.
9.3.4 Wotonga North
Stanmore Coal acquired 100% of the Wotonga North assets from Peabody Energy in 2015. The transaction was for a total consideration of A$7M and included MDL 135 and the northern part of MDL 137. The tenements are located near Moranbah, Central Queensland, and are easily accessible by road and rail. The MDL’s are adjacent to the Isaac Plains Mine which Stanmore Coal also acquired in 2015. The Rangal Coal Measures occur at shallow depths throughout the tenement. The Leichhardt Seam has been well defined by BHP when they held tenure over the area in the 1970’s and 1980’s. The underlying Vermont seams are not well understood with few drill hole intersections. An indicated resource of 14.5 Mt was reported by BHP in 2002. This was only within the Leichhardt Seam to a depth of 90 metres.

9.3.5 Dingo West
Magnetic South acquired 100% ownership of the Dingo West project from the administrators of Bandanna Energy in 2015. The total consideration was A$6M. The project comprised one EPC with a reported resource base of 81 Mt, all of which was classified as inferred. The project is located along the Capricorn Highway, and is centred approximately eight kilometres to the west of Dingo. The central railway line transects the tenement. The resource is within the Baralaba Coal Measures and is within a zone of structural complexity characterised by large reverse faults. The coal is of high rank and is expected to produce a low volatile PCI product.

9.3.6 Mt Pleasant
MACH Energy acquired the Mt Pleasant Project from Rio Tinto in 2016 for a total consideration of A$319M. The project is located in the Hunter Valley of NSW, near Muswellbrook, adjacent to the Bengalla Mine. The project had a reported resource base of 811 Mt at the time of the transaction with only 10% of this being classified as inferred. It is expected that export quality thermal coal will be produced from the mine once it is developed.

9.3.7 Olive Downs and Surrounding EPC’s
Pembroke Resources acquired 100% ownership of the Olive Downs Project, along with a portfolio of surrounding EPC’s, from Peabody Energy in 2016. The total consideration was A$87M. The tenements are located in Central Queensland, approximately 30 to 40 kilometres to the north and northeast of Dysart. Resources totalling 813 Mt have been estimated and identified within the Rangal Coal Measures:

<table>
<thead>
<tr>
<th>Project</th>
<th>Measured</th>
<th>Indicated</th>
<th>Inferred</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olive Downs Complex</td>
<td>272</td>
<td>334</td>
<td>207</td>
<td>813</td>
</tr>
</tbody>
</table>

It is expected that semi-soft coking coal and PCI products can be produced from the resource.
9.4 Valuation Assessment

The relative adjustment factors applied to each of the comparable transactions are shown in the table below along with the resultant adjusted base value per resource tonne.

<table>
<thead>
<tr>
<th>Comparable Properties</th>
<th>Nominal Base Value (A$/t)</th>
<th>Mining Method Adjustment</th>
<th>Quality Adjustment</th>
<th>Location Adjustment</th>
<th>Mineability Confidence Adjustment</th>
<th>Coal Price Adjustment</th>
<th>FX Adjustment</th>
<th>Adjusted Base Value (A$/t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>MDL 162</td>
<td>0.47</td>
<td>0.60</td>
<td>1.49</td>
<td>1.0</td>
<td>0.79</td>
<td>1.23</td>
<td>0.74</td>
<td>0.30</td>
</tr>
<tr>
<td>North Surat</td>
<td>0.10</td>
<td>0.60</td>
<td>1.67</td>
<td>9.0</td>
<td>0.75</td>
<td>1.45</td>
<td>0.91</td>
<td>0.87</td>
</tr>
<tr>
<td>AQC</td>
<td>0.31</td>
<td>1.00</td>
<td>1.49</td>
<td>1.5</td>
<td>0.88</td>
<td>1.84</td>
<td>1.05</td>
<td>1.17</td>
</tr>
<tr>
<td>Wotonga North</td>
<td>0.57</td>
<td>0.60</td>
<td>1.35</td>
<td>1.0</td>
<td>0.79</td>
<td>1.84</td>
<td>1.05</td>
<td>0.71</td>
</tr>
<tr>
<td>Dingo West</td>
<td>0.44</td>
<td>0.60</td>
<td>1.20</td>
<td>1.0</td>
<td>0.88</td>
<td>2.02</td>
<td>1.08</td>
<td>0.61</td>
</tr>
<tr>
<td>Mt Pleasant</td>
<td>0.45</td>
<td>0.60</td>
<td>1.67</td>
<td>1.0</td>
<td>0.88</td>
<td>2.12</td>
<td>1.08</td>
<td>0.92</td>
</tr>
<tr>
<td>Olive Downs (adjacent EPC's)</td>
<td>0.16</td>
<td>0.75</td>
<td>1.49</td>
<td>1.0</td>
<td>0.79</td>
<td>1.74</td>
<td>1.06</td>
<td>0.26</td>
</tr>
</tbody>
</table>

The adjusted unit rate per resource tonne ranges A$0.26/t to A$1.17/t. The data set upper bound is AQC with Olive Downs and MDL 162 maintained as the lower bound. Discarding these as outliers indicated adjusted values lie between A$0.61/t and A$0.92/t.

Nominal resource tonnages reflecting geological confidence of the resource were determined for Wongai (22% of indicated resources and 78% of inferred resources) and factored into the valuation. Using these adjusted values, the indicative range of valuation is summarised in the table below:

<table>
<thead>
<tr>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit Rate (A$/t)</td>
<td>0.61</td>
</tr>
<tr>
<td>Wongai Resources Mt</td>
<td>90</td>
</tr>
<tr>
<td>Nominal Resources Mt</td>
<td>27.6</td>
</tr>
<tr>
<td>Valuation Range A$M</td>
<td>16.8</td>
</tr>
</tbody>
</table>

Based on the comparable sales method, BOYD opines that the value of the Wongai Coking Coal Project on a 100% equity basis as at 1 June 2017 ranges from A$16.8M to A$25.4M.

9.5 Geoscientific Rating

In order to confirm the reasonableness of the valuation of the project for which JORC compliant resources were reported, a Geoscientific Rating Method (Modified Kilburn Approach) was used.

The Geoscientific Rating Method attempts to quantify a number of technical factors of a property by applying multipliers to a BAC. The BAC is the average cost to acquire a unit measure (sub block) of an exploration tenement which in relation to coal in Queensland is an EPC, and meet all statutory expenditure requirements for a period of 12 months. This includes the costs to identify, apply for, and retain an EPC.
The technical factors considered are:

- Off Property (Vicinity to Other Deposits/Mines) – the location of the property with respect to known coal bearing areas, old workings and or mines outside the property.
- On Site Geologic Potential – the geological characteristics within the property.
- Deposit Knowledge (Exploration Effort) – the degree of exploration completed on the property and the resultant deposit knowledge.
- Coal Quality – the type of coal that is expected to be found on the property.
- Off Site Infrastructure – the availability of supporting coal chain infrastructure, particularly transport (rail, road) and port, to the property.

BOYD developed multipliers and criteria for each of these factors, varying from a low level of knowledge or adverse situation, to a high level of knowledge with significant mining operations in a thick seam setting. These are shown in the table below:

<table>
<thead>
<tr>
<th>Rating</th>
<th>Off Property (Vicinity to other Deposits/Mines)</th>
<th>On Site Geologic Potential</th>
<th>Deposit Knowledge – Exploration Effort</th>
<th>Coal Quality</th>
<th>Off Site Infrastructure</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
<td>-</td>
<td>-</td>
<td>No seams identified</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>0.5</td>
<td>-</td>
<td>Unfavourable stratigraphy</td>
<td>Thin seams at depth expected</td>
<td>Lignite</td>
<td>Unable to access market</td>
</tr>
<tr>
<td>0.7</td>
<td>-</td>
<td>Generally favourable stratigraphy on 25% of lease, significant intrusions, structurally complex</td>
<td>Thin seams at shallow depth expected</td>
<td>Mid energy thermal coal with no impurities, high energy thermal coal with impurities</td>
<td>At distance to market, supporting infrastructure under consideration</td>
</tr>
<tr>
<td>0.9</td>
<td>No known coal occurrences in district</td>
<td>Generally favourable stratigraphy on 50% of lease, minor intrusions, structurally moderate</td>
<td>Thin seams at shallow depth expected</td>
<td>High energy thermal coal with no impurities</td>
<td>At distance to market and supporting infrastructure under development</td>
</tr>
<tr>
<td>1.0</td>
<td>Some coal deposits identified in vicinity (strike, dip)</td>
<td>Generally favourable stratigraphy on 75% of lease</td>
<td>Coal seams identified</td>
<td>High energy thermal coal with no impurities</td>
<td>-</td>
</tr>
<tr>
<td>1.5</td>
<td>Multiple coal deposits identified in vicinity (strike, dip)</td>
<td>-</td>
<td>Single consistent coal seam or multiple seams identified</td>
<td>High volatile PCI coal</td>
<td>At distance to market and supporting infrastructure in place</td>
</tr>
<tr>
<td>2.0</td>
<td>Existing mine in vicinity (strike, dip), multiple coal deposits in vicinity</td>
<td>Generally favourable stratigraphy, minor intrusions, structurally simple</td>
<td>Favourable aggregate coal seam thickness (4 m)</td>
<td>Soft coking coal with impurities, low volatile PCI coal</td>
<td>-</td>
</tr>
<tr>
<td>2.5</td>
<td>-</td>
<td>Generally favourable stratigraphy, no intrusions, structurally simple</td>
<td>More favourable aggregate coal thickness (&gt;4 m)</td>
<td>Hard coking coal with impurities, soft coking coal without major impurities</td>
<td>Proximity to market and supporting infrastructure in place.</td>
</tr>
<tr>
<td>3.0</td>
<td>Multiple existing major mines in vicinity</td>
<td>Favourable stratigraphy, no intrusions, no structural features</td>
<td>-</td>
<td>Hard coking coal with no major impurities</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>Adjacent to existing significant mining operation</td>
<td>-</td>
<td>Multiple thick seams</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
In Queensland, the cost to maintain an EPC is rent of A$150.60/sub block and approximately A$1,500/sub block in annual expense, resulting in a total of A$1,651/sub block.

BOYD applied factors to the BAC to determine a value for the project:

<table>
<thead>
<tr>
<th>Property</th>
<th>BAC</th>
<th>Off Property</th>
<th>On Site Geology</th>
<th>Coal Quality</th>
<th>Exploration</th>
<th>Off Site Infra</th>
<th>Technical Value (A$/sub block)</th>
<th>Area of EPC (No. of sub blocks)</th>
<th>FMV (A$M)</th>
<th>100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1,651</td>
<td>1.0</td>
<td>2.5</td>
<td>2.5</td>
<td>1.5</td>
<td>1.0</td>
<td>15,474</td>
<td>50</td>
<td>0.8</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>1,651</td>
<td>1.5</td>
<td>3.0</td>
<td>3.0</td>
<td>1.5</td>
<td>1.2</td>
<td>40,110</td>
<td>50</td>
<td>2.0</td>
<td></td>
</tr>
</tbody>
</table>

The indicated range in value using the Geoscientific Rating method is from A$0.8M to A$2.0M. This is significantly lower than the valuation range obtained using the Comparable Sales Method. The reduced valuation reflects the small size of the tenure that has resulted from the relinquishment of non-prospective sub-blocks and the subjective nature of the assessment. The methodology does not reflect the influence of market sentiment, inherent in the market valuation approach.

Given the more subjective nature of the Geoscientific Rating Method and that it is used as a check, BOYD considers that the valuation results obtained from the primary valuation method to be more reliable.

### 9.6 Valuation Summary

The project was considered to be in an early stage of development and unsupported by sufficient proved and probable ore reserves to provide reasonable confidence that economic development is assured.

BOYD used a Comparable Sales method to develop a valuation assessment of the Wongai Coking Coal Project on a 100% basis, as at 1 June 2017. Our opinion of probable value is in the range of A$16.8M to A$25.4M.
## APPENDIX A

### QUALIFICATIONS AND EXPERIENCE

<table>
<thead>
<tr>
<th>Professional</th>
<th>Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ian Alexander</td>
<td>Thirty-seven years experience in industry with over twenty-three years in senior management roles. Experience includes business planning on strategic and tactical levels, project planning, project management, significant business improvement initiatives. Expertise in the management of major surface mine operations in iron ore and coal.</td>
</tr>
<tr>
<td>Hugh Morrison</td>
<td>Thirty-five years experience in the mining industry with over eleven years in senior mine management roles and twelve as a consultant. Experienced in operations and technical processes in both surface and underground mining. Strong background in technical analysis, due diligence, mine operations, contracts, systems design and re-engineering, feasibility and valuation assessments, risk assessment and safety management.</td>
</tr>
<tr>
<td>Mark Benson</td>
<td>Experienced geologist with over fourteen years in geological and geotechnical roles. Experience in the design and management of exploration programs, interpretation of exploration data, development of geological models, and preparation of resources statements.</td>
</tr>
</tbody>
</table>

U:\BOYD_PROJECTS\5169.000 Bounty Mining - ITR Wongai Coal Deposit\BOYD Report\Final\APPENDIX A.docx