27 June 2017

Australian Pacific Coal Limited (ASX:AQC)

DARTBROOK COAL RESOURCE ESTIMATE 2.5 BILLION TONNES

HIGHLIGHTS:

- **A report commissioned by Australian Pacific Coal Ltd to comprehensively review geological resources and coal quality at Dartbrook identifies a total Coal Resource Estimate of 2.5 billion tonnes;**
- **Comprising 588 million tonnes Measured, 850 million tonnes Indicated and 1097 million tonnes Inferred Resources;**
- **Coal washability analysis demonstrates ability to produce a range of thermal coal products between 10 to 20% ash air dried basis ("adb");**
- **Ability to produce 9% ash adb PCI product from Piercefield and Kayuga seams;**
- **Subject to relevant approvals, there is the potential for a long mine life, low strip ratio open cut mining operation at Dartbrook**
- **Dartbrook has significant existing infrastructure in place including rail loop, Coal Handling Preparation Plant ("CHPP"), Train Load Out facility ("TLO") and product stockpiles.**

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Australian Pacific Coal Limited ("AQC" or "Company") is pleased to announce the findings of an independent assessment undertaken by geological consultants GPPH & Associates ("GPPH") on behalf of the Company estimating a 2.5 billion tonne Coal Resource Estimate ("CRE") for the Dartbrook Project located in the Hunter Valley, NSW.

The CRE comprises 588 million tonnes (Mt) and 850Mt in the Measured and Indicated categories respectively, a total of 1438Mt, based on the area of the exploration licenses to the depth that has been modelled.

Coal washability analysis demonstrates the option to produce a range of thermal coal products between 10% to 20% ash on an adb and the potential to produce 9% ash adb PCI coal from the Piercefield and Kayuga seams.

Table 1 Summary of Dartbrook In Situ Resources by Depth

Million Tonnes *in situ*				
Depth	Measured	Indicated	Inferred	Total
< 450m	507	638	658	1,803
<450m Non-Open Cut	80	208	388	675
> 450m	2	3	51	56
Total	588	850	1,097	2,534

Table 2 Summary of Dartbrook *In Situ* Resources by Tenement

Million Tonnes *in situ*				
Tenement	Measured	Indicated	Inferred	Total
CL386	338	291	178	807
ML1497	195	345	487	1,026
ML1381	0	1	0	1
ML1456	0	0		0
A256	34	74	34	142
EL4574	7	51	173	231
EL4575	11	49	154	214
EL5525	3	39	71	113
Total	588	850	1,097	2,534

AQC's Chief Executive Officer, Mr John Robinson said "*This Resource Statement confirms Dartbrook is one of the largest under developed coal deposits in the Hunter Valley. This reaffirms our long-held belief that Dartbrook is a tier one surface mining asset that has the potential to create a significant number of job opportunities for the local community. The high energy, low emission (HELE) quality of Dartbrook's coal will also help meet global demand for Australian low ash premium thermal coal, which will continue to play a critical role in reducing greenhouse emissions whilst at the same time meeting future energy needs.*"

The CRE was estimated by Lynne Banwell of GPPH & Associates ("GPPH"). GPPH is a leading provider of technical mining consulting, geological services and strategic corporate advice to the coal mining and resource industry. GPPH specialise in management consulting services, geology modelling, resource and reserve estimation to JORC standards.

The CRE was prepared by GPPH in accordance with the JORC Code (2012 Edition). For further information, please contact: Australian Pacific Coal Limited Media Relations Manager Chris Ford 0411 423 272.

1.1 DARTBROOK PROJECT OVERVIEW

Dartbrook was operated as an underground colliery using longwall methods between 1994 and 2006. Mining occurred in the Wynn and Kayuga seams. Since the suspension of underground mining activities, the focus of exploration and mining studies has shifted to the seams between the surface and the Edderton Seam for open cut extraction.

The Project is located in the Hunter Valley, NSW, approximately 4km west of Aberdeen and 10km north-west of Muswellbrook. The location ideally places Dartbrook near world class infrastructure, workforce and support industries used by major mining companies in the region to serve key customers in Asia.

Access to the Project is via sealed road directly off the New England Highway, with the mine connected to the existing northern line of the Hunter Valley Rail Network to transport coal to the port of Newcastle for export, approximately 147km to the south-east.

Coal at Dartbrook is classed as a high volatile bituminous coal. It is able to produce a range of thermal coal products between 10 to 20% ash on an air-dried basis (“adb”).

The area has a low vertical ratio even to depths of up to 500m and hence a large potential resource exists. The CRE focuses on the coal resources within the Dartbrook tenements. The CRE is constrained by the depth of information of the boreholes and geological modelling. The basal seam of modelling is the Edderton seam.

The Dartbrook CRE is located on the western side of the Muswellbrook Anticline, and the Hunter River. Strata of the Permian Wittingham Coal Measures outcrop in the area and dip 3 to 5 degrees to the west. Structural geology is simple with relatively minor faulting. Underground mining at Dartbrook has provided direct evidence of the coal continuity in the mined seams and confirmation of the interpretations based on drilling data.

Two thick dykes and one plug have been well defined by magnetic surveys supplemented by follow up drilling. Small dykes have been found in underground workings and the impact of the dykes and plugs on coal quality is minimal.

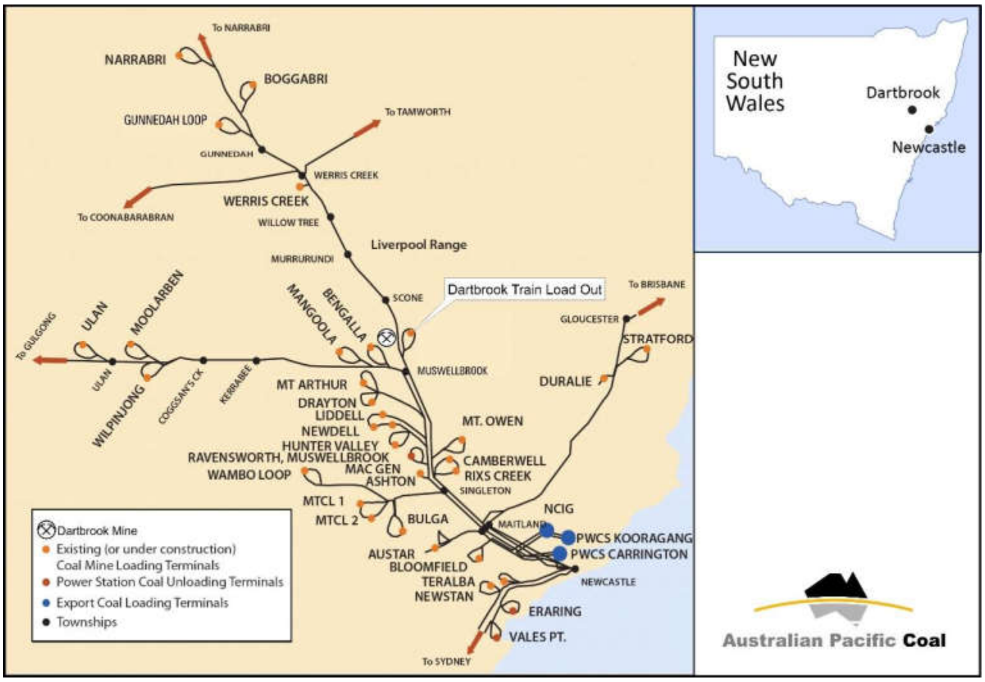


Figure 1: Project Location

Resources are estimated in accordance with the “Australian Guidelines for Estimation and Classification of Inventory Coal Resources” (2014), and are reported in compliance with the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves – The JORC Code 2012 Edition”.

1.1.1 Location, Access and Topography

Mining operations in the immediate area surrounding the Project include Mangoola (Glencore, 13.5 Mtpa approval), the Bengalla JV (New Hope and Wesfarmers, 15 Mtpa approval), Mount Arthur (BHP Billiton, 36 Mtpa approval) and the adjacent project Mount Pleasant (Mach Energy).

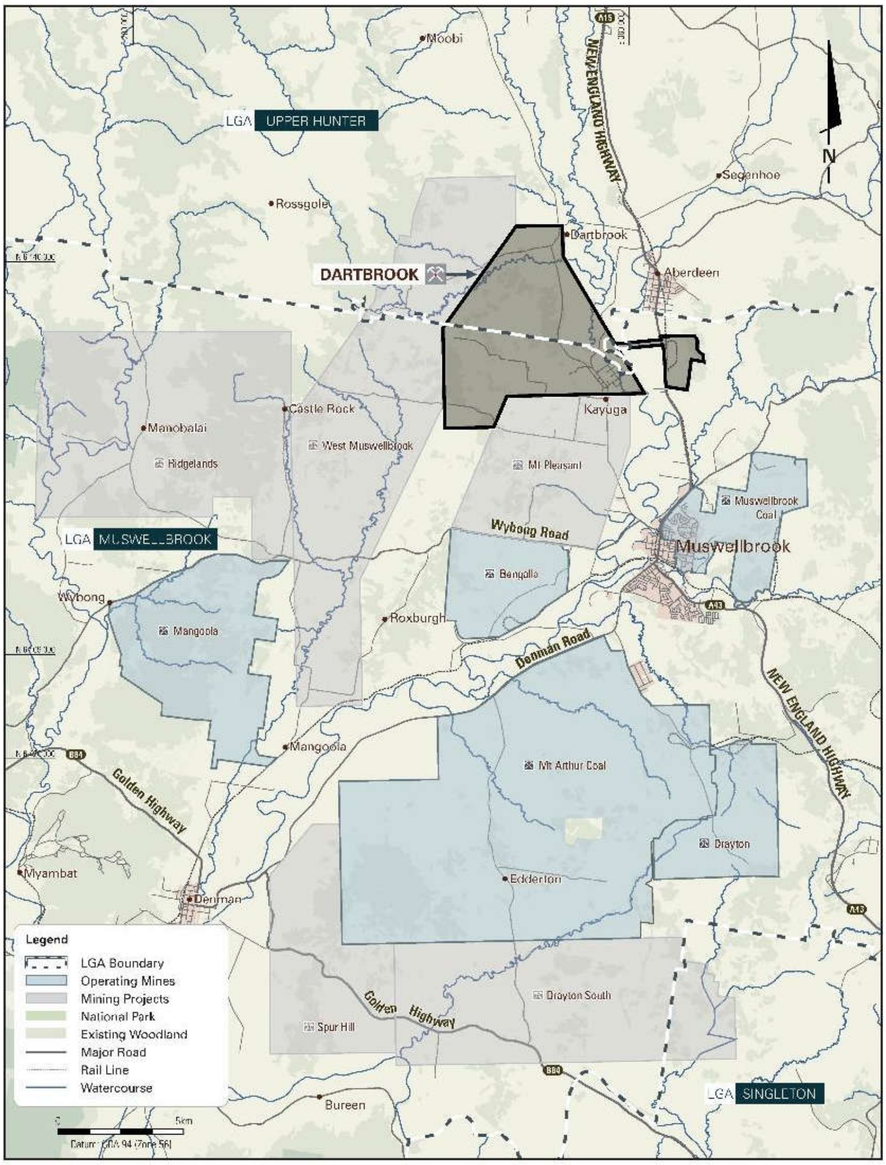


Figure 2: Aerial view of adjacent open cut operations

The Hunter River is located to the east of the Dartbrook lease areas, running north-south. In the tenement area, the main tributary to the Hunter River is the Dart Brook. It flows through the eastern portions of the tenements from north to south. The Dart Brook joins the Hunter River in the south east of the tenement. Sandy Creek flows through the northern portion of the tenements joining the Dart Brook in the north.

The north-eastern parts of the Dartbrook leases are located on the Hunter River flats, at an elevation of approximately 170m (AHD). The topography rises towards the south-west, where it reaches an elevation of 330m (AHD). Overall the topography undulates gently, with areas of flat ground near the Hunter River.

1.1.2 Land Holding and Tenure Summary

Dartbrook has a large, freehold land package of over 3,400 hectares covering the majority of the potential open cut mining area. Dartbrook's mining leases (ML) and coal leases (CL) cover a total of 3,268 hectares, whilst the exploration licences (EL) and authorisation permits (AUTH or A) cover 3,800 hectares (which includes areas also within the area of the MLs and CLs).

ML1497 currently excludes mining from surface to 20m above the roof of Mount Arthur seam. The overlying EL4575 and EL5525 allow access from the surface to 20m above the roof of the Mount Arthur seam for exploration. The CRE assumes that coal outside the alluvial boundary stand off and to a 450m depth is assessable to open cut mining.

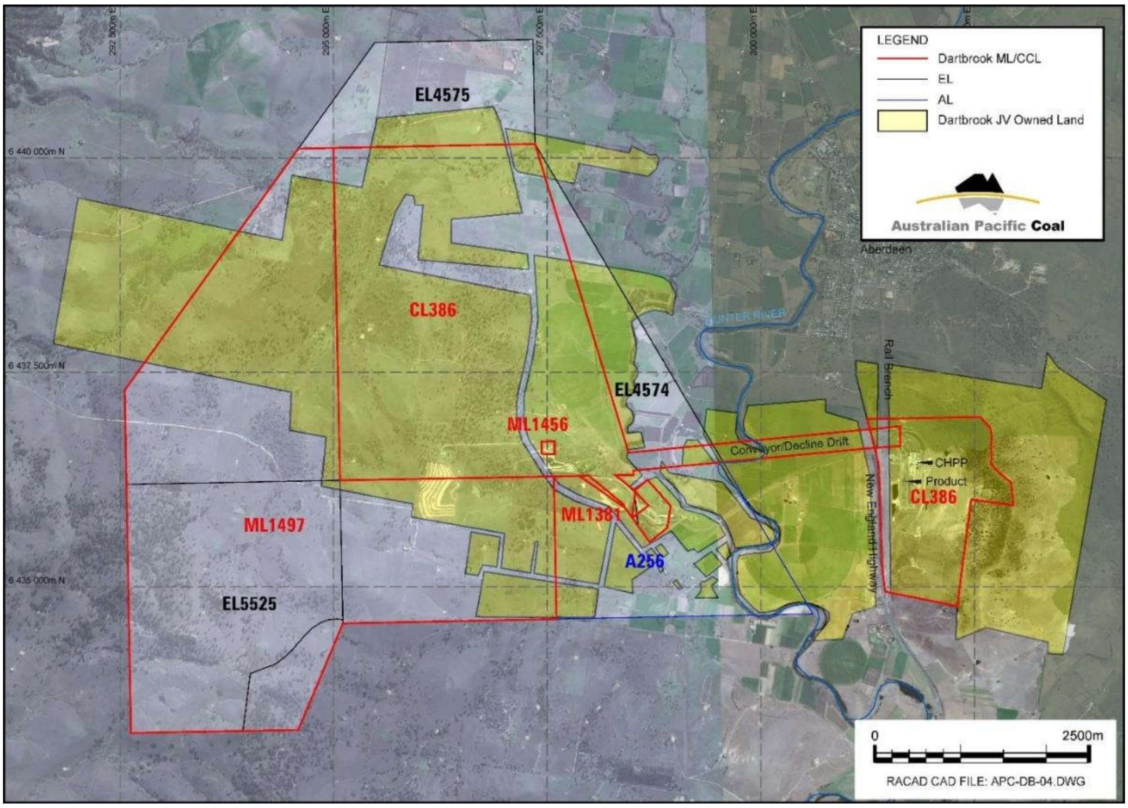


Figure 3: Dartbrook Land Holdings and Tenure

1.1.3 Existing infrastructure and conducive operating environment

Key mining and processing infrastructures has been maintained in a good condition since Dartbrook was placed in care and maintenance in 2006. Surface infrastructure, including power, waste and office facilities as well as the CHPP and TLO, remain ready for recommencement of operations with minimal capital outlay.

The Project's existing on-site TLO and rail loop, connect to the Northern line of the Hunter Valley Coal Rail Network for the transportation of coal to the port of Newcastle. The port contains two world-class coal handling terminals. One of these is the Port Waratah Coal Services, the largest coal export terminal in the world, owned and operated by Hunter Valley coal producers and customers. The Hunter Valley network has undergone considerable capital investments and throughput improvements in the last 10 years, making it the largest coal export operation in the world.

Furthermore, a long history of mining in the Hunter Valley has created a large pool of highly skilled workers and lasting partnerships with suppliers as well as stakeholders.

Figure 4: Dartbrook CHPP

Figure 5: Dartbrook Mine Infrastructure Area

1.2 SUMMARY OF RESOURCE ESTIMATE AND REPORTING CRITERIA

1.2.1 Geology and Geological Interpretation

Dartbrook is located in a relatively structurally benign zone of flat-lying to gently folded strata on the western side of the Muswellbrook Anticline.

Strata of the Permian Wittingham Coal Measures crop out in the area and dip gently to the west. Underlying marine sediments of the Maitland Group sub-crop on the eastern side of the Aberdeen Thrust. Further to the east lies the basin-bounding fault, the Hunter-Mooki Thrust. The Greta Coal Measures (which are exploited at the nearby Drayton and Muswellbrook Collieries) occur below the Maitland Group, but at depths in excess of 1,000m below the surface.

Dips in the area are gentle, ranging from 3^{o}-5^{o} to the west or north-west. Local variations of up to 15^{o} have been identified, and are generally considered to be due to clastic wedging, seam splitting and differential compaction.

One hundred and eleven coal plies are identified within the 15 major seam groups (Whynot to Edderton, refer Figure 6 – Coal Seam Stratigraphy) deemed to be of mining potential. Seam splitting is common particularly in the Mt Thorley and Burnamwood Formations. Despite the amount of seam splitting the coal plies show lateral consistency in both thickness and raw ash providing confidence in resource classification.

Interburden is dominated by interbedded fine to coarse grained sandstone, siltstone and mudstone of varying carbonaceous content, with minor amounts of claystone, tuffaceous claystone, and occasional coarse-grained sandstone and conglomerate. The base of weathering depth ranges from 5m to 45m, and is generally 15 to 20m.

Two major dykes have been interpreted at Dartbrook from various aeromagnetic surveys, magnetometer surveys and surface trenching. These dykes traverse the area in a north-east to south-west direction and have been well defined in both extent and impact. Small scale dykes have been identified in previous underground workings. An intrusive plug and breccia zone occurs adjacent to the old Kayuga seam workings.

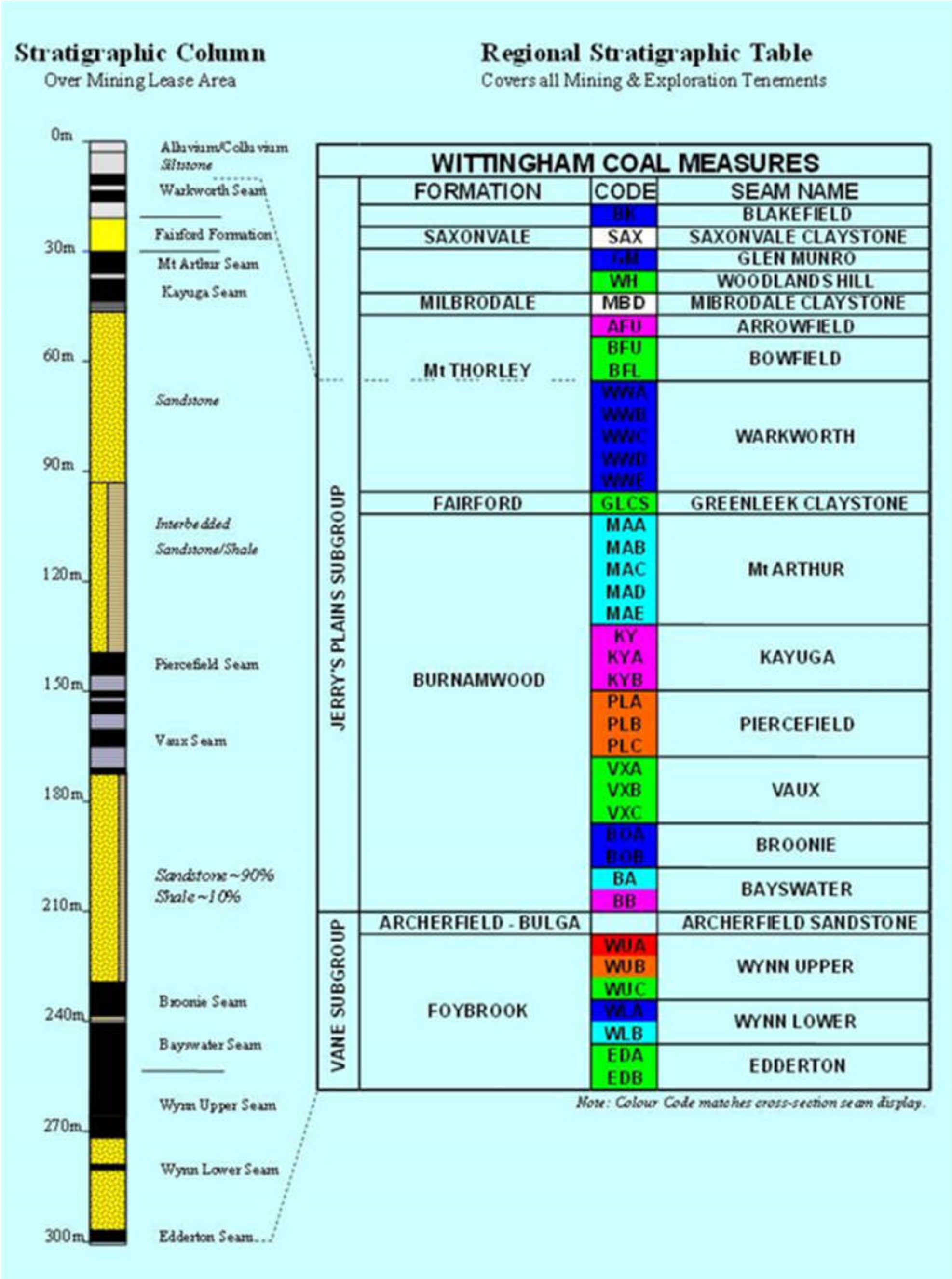


Figure 6: Coal Seam Stratigraphy

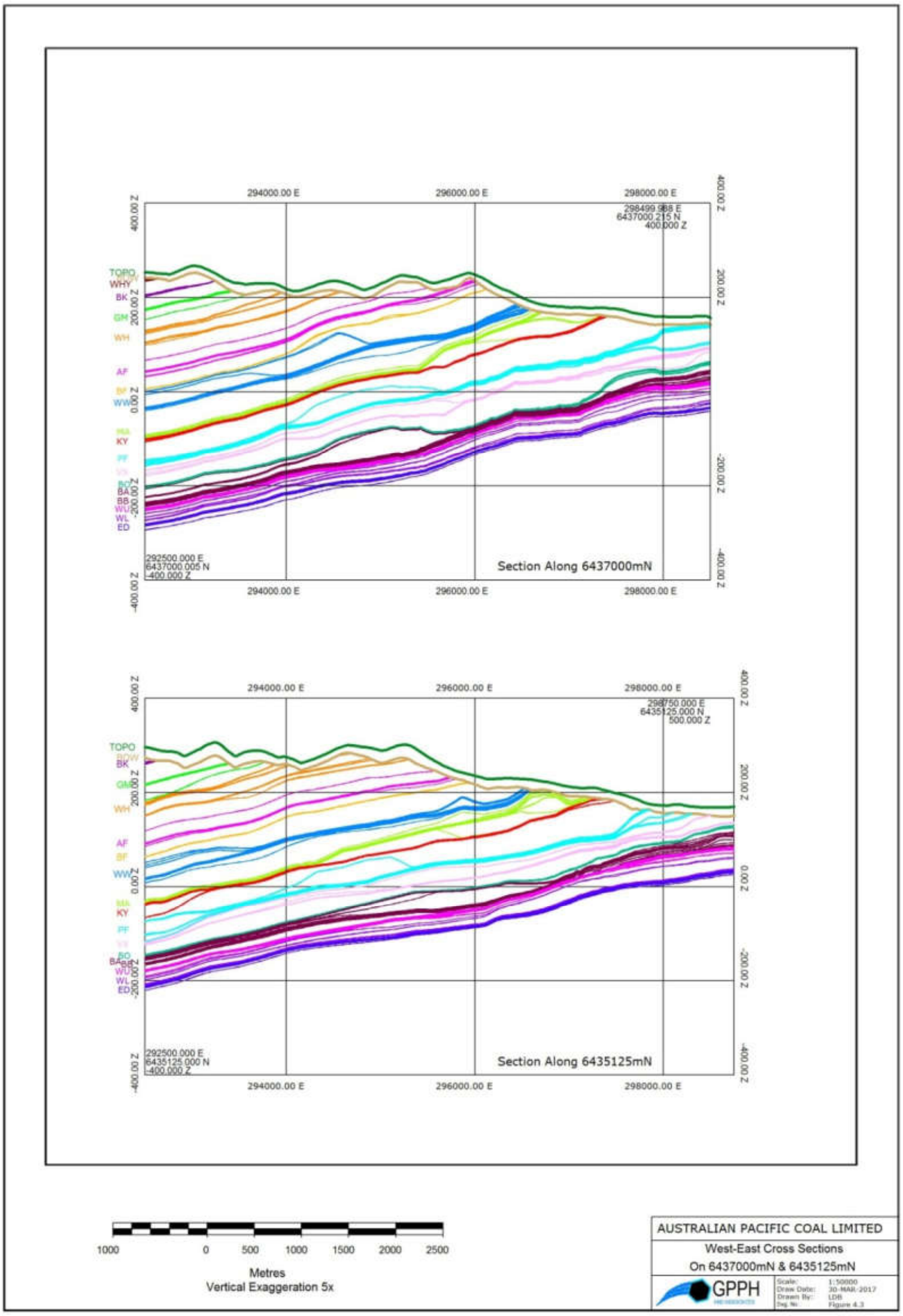


Figure 7: West-East Cross Sections

Faults trend north-west south-east, however most have only small displacement and historically did not materially impact on mining. A north-north-west trending, sub-vertical fault system with a maximum throw of 5m has been identified which past underground mine activities successfully navigated, without impediment in the Kayuga seam.

The Project is well suited to open cut operations, with the historical underground mining providing significant knowledge and understanding of mining conditions, coal quality, proposed approach and risk mitigation.

Dartbrook benefits from being a relatively dry mine environment, with water associated with the Hunter River alluvium and groundwater in the Permian strata being unconnected to the underground workings and of different quality and transmissivity.

1.2.2 Drilling and Sampling Techniques

Exploration at Dartbrook has been through a series of drilling campaigns incorporating slim cores, large diameter cores and non-core holes. Exploration commenced in the 1970s and continued until 2012. Downhole geophysics was run in both cored and non-cored holes. Quality and geotechnical testing was conducted on cored holes. Drilling is generally on a 250m grid pattern with a combination of cored and non-cored holes. Table 3 below shows the number of boreholes and the amount of logging and sampling done.

Table 3 Summary of Dartbrook Borehole Data

Holes	Number
In Database	1123
In Model	1026
With some Geophysics	547
With Raw CQ Analyses	355
With Washed CQ Analyses	343

Diamond drill bits have been used for slim cored holes and tungsten bits used for non-cored holes. Large diameter cored holes using polycrystalline diamond (PCD) drill bits have been used to provide bulk samples for detailed washability analyses.

1.2.3 Sample Analysis Method

Full cores were used for sample testing. Core sampling was completed at the drill site or core shed. Much of the sampling has been based on the individual plies. However, ply interpretation has been updated after some of the older sampling. As a result, some samples cover several plies.

Samples have been crushed and sub-sampled in NATA registered laboratories using appropriate Australian Standards for coal testing. All samples were weighed, air dried then re-weighed before being crushed to -11.2mm. One eighth of the sample was then divided off to test for Raw Coal Proximates RD and TS. The complement was washability tested. Plies with a core recovery of < 95% were re-drilled.

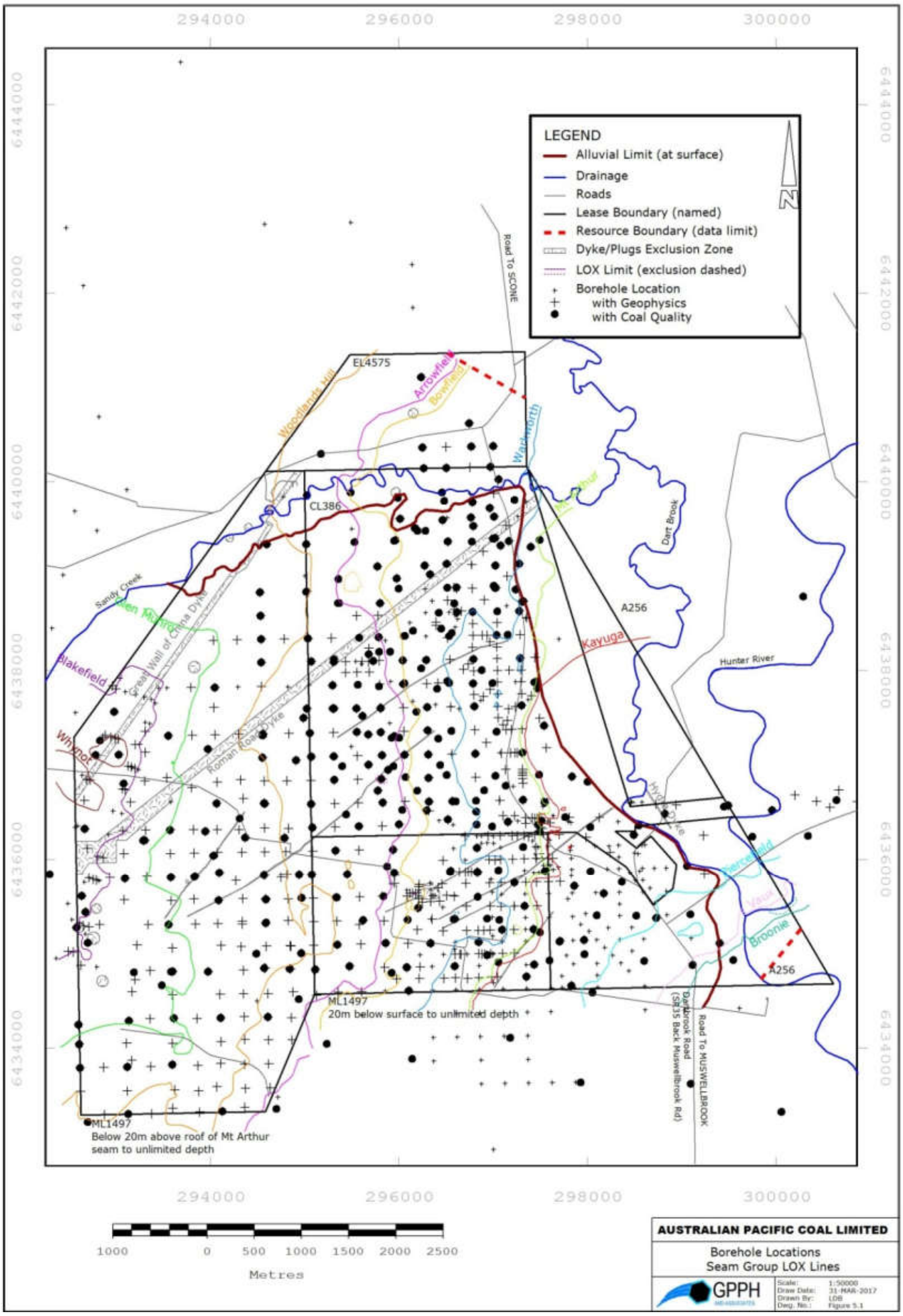


Figure 8: Borehole Locations

1.2.4 Resource Estimation Methodology

The Coal Resource Estimation has been reported based on the guidelines recommended in *The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves* ('the JORC Code') (*2012 Edition*).

The criteria adopted to determine the resource status are broadly those outlined in *Guidelines for the Estimation and Classification of Coal Resources – 2014 Edition* prepared by the Coalfield Geology Council of New South Wales and the Queensland Resources Council.

The salient points for resource categorisation are:

- A quality point of observation (POB) for each ply is defined as a cored hole with coal recovery of >90 % and having raw ash data. NB., most samples with raw ash data have corresponding washability data which will support future reserves estimation. Measured and Indicated resource limits are defined by quality POBs.

- A structural point of observation for each ply is defined as a ply borehole intercept with downhole geophysics and/or a fully cored section. The most of structural boreholes have downhole geophysics. Inferred resource limits are defined by quantity POBs.

- Supporting data for coal continuity are holes with downhole geophysics and 2D seismic surveys over the area.

- The project area is considered to be a single structural domain, with the dykes being exclusion zones rather than domain boundaries.

- Overall confidence in the geological interpretation of the deposit is high. This is due to the number of boreholes and the relatively low variability shown by the laterally consistent seam dip and lack of structural domain boundaries. The area has been underground mined in the Wynn Upper and Kayuga seams, providing direct evidence of the coal continuity in the mined seams.

- The igneous geology is well understood and underground mining shows that dykes and plugs have a very limited effect on the quality of the coal in the contact zone.

- Ply thickness contours indicate strong continuity and consistency with local trending. Significant effort has been put into detailed ply correlations across the deposit. The correlation is aided by good stratigraphic markers and facilitated by downhole geophysics and detailed core logging.

- The density and location of coal quality points of observation (POB) and the consistency of coal quality data and ply/working section thickness is based on statistical analysis and spatial distribution.

- Raw ash is not as consistent as the ply thickness but it is still reasonably consistent.

- Results from 2016 geostatistical analyses indicate that the borehole spacing criteria used in the previous assessments is conservative. Therefore, the classification is broadly based on these spacing (see Table 4 below), but extend over short distances (~100m for measured, ~150m for indicated) between adjacent boreholes where ply thickness and ash show good continuity.

- The resource limits are extrapolated beyond the last POB to approximately 2km. This is in keeping with previous resource estimations, and it is also supported by the regional geology.

Table 4 Summary of Dartbrook POB Spacing for Resource Classification

Resource Class	Radius of Influence (m)	Distance Apart (m)
Measured	250	500
Indicated	500	1000
Inferred	1000	2000

The geological model was generated in 2011-2012 by Palaris and Collective Experience. Palaris generated the structure model (seam/ply roof, floor thickness, etc.) using Minex Software, while the coal quality model was generated by GPPH & Associates using Vulcan software.

The resource estimation has been carried out by GPPH & Associates using Version 9 of Maptek's VULCAN 3-D geological modelling software. The model is of the coal plies only. Ply structure modelling (10x10m grid) is based on triangulation of the structure roof and floor intercepts corrected for borehole deviation. Coal quality models (10x10m grid) are generated using the Inverse Distance Algorithm. Resources were calculated using Vulcan's RSVUte module. Checks are performed by calculating resources in a completely different volumetric module within VULCAN.

Average raw coal quality parameters on an air-dried basis ("adb") calculated per block are RD, Ash, Inherent Moisture, Volatile Matter, Total Sulphur and CSN. *In situ* density (calculated for each ply by the Preston-Sanders method) was used for mass (Tonnes) calculation and is reported as a coal parameter.

1.2.5 Relative Density and *In situ* Moisture

True RD is modelled directly from Laboratory RD data. *In situ* RD is calculated via the Preston & Sanders formula using the True RD model, Inherent Moisture model and a calculated *in situ* moisture. The inherent moisture is in the order of 2% to 8% averaging

4.3%. *In situ* Moisture is calculated using the ACARP Report C10041 formula as follows:

In situ moisture = 1.1431 x Moisture Holding Capacity + 0.348.

For an MHC of 8.0 the calculated average *in situ* moisture is 9.5%.

1.2.6 Resource Constraints

- The eastern up-dip limit is the ply lox line;
- The down-dip, northern & southern limits are set by lease boundaries;
- Mined out plies are excluded;
- If a "standalone" coal ply – minimum ply thickness of 30cm;
- If a ply adjacent to another ply – if the coal ply is less than 30cm but the parting between coal plies is less than the coal ply thickness, then the ply is included;
- A maximum raw ash constraint of 45% was applied.
- Exclusion around the Great Wall of China (~50m wide zone), Roman Road (~100m wide zone) and Hydra Dykes (~10m wide zone) plus major dykes (>1m wide) found in Wynn seam underground workings;
- Kayuga Plug and adjacent brecciated zone and "probable" plugs outlined by magnetic surveys.

1.2.7 Break-up of Resources

The primary break-up of the resources is based on the alluvial limit surrounding the Hunter River. All resources occurring below the alluvials and within the alluvial limit stand-off have been categorised as underground resources.

The area to the west and south of the alluvial limit has been broken into resources to 450m depth of cover and resources with greater than 450m depth of cover. A feature of the Wittingham Coal Measures is that the cumulative vertical waste to coal tonnage ratio does not significantly change with increase in depth as more seams are added as the sequence deepens. The cumulative vertical ratio to the Edderton seam exceeds 5:1 only in the northern portion of ML1497. Elsewhere through the tenements, it is no greater than 5:1.

1.2.8 Potential Products

Dartbrook's past export product was low in ash (9-10%) and sulphur (~0.30%) on an as received basis, with a relatively high calorific value (6,200-6,300) Kcal/kg (GAR), comparing favourably with adjacent thermal coal operations and the Newcastle benchmark. The low sulphur content also enhances the marketability of the product through blending with higher sulphur Hunter Valley coals.

Coal quality Listed in Table 5 below, illustrates the potential to produce a range of thermal coal products between 10 to 20% ash adb.

Table 5 Weighted Average Raw Coal Qualities by Seam

Seam	*In Situ* Density g/cc	Air-dried Density g/cc	Raw Ash % adb	Inherent Moisture % adb	Total Sulphur % adb	Volatile Matter % adb	Calorific Value kcal/kg adb
Blakefield	1.39	1.41	14.0	7.5	0.34	29.0	5800
Glen Munro	1.55	1.57	33.4	7.6	0.26	23.9	4500
Woodlands Hill	1.48	1.50	23.6	7.5	0.32	28.3	5300
Arrowfield	1.39	1.41	13.8	7.0	0.35	31.8	6200
Bowfield	1.48	1.51	25.6	6.5	0.34	27.6	5300
Warkworth	1.44	1.47	21.6	6.1	0.41	29.7	5800
Mount Arthur	1.44	1.47	20.5	5.7	0.31	28.3	5800
Kayuga	1.42	1.44	18.7	5.5	0.30	30.8	5900
Piercefield	1.40	1.43	17.1	5.0	0.40	31.2	6200
Vaux	1.45	1.49	24.1	4.7	0.38	28.0	5600
Broonie	1.42	1.46	20.7	4.0	0.46	29.5	5900
Bayswater A	1.46	1.50	24.4	3.7	0.38	27.7	5800
Bayswater B	1.51	1.56	25.2	3.5	0.24	24.5	5400
Wynn Upper	1.42	1.46	20.9	3.5	0.44	29.1	6000
Wynn Lower	1.51	1.56	29.8	3.7	0.54	27.2	5400
Edderton	1.49	1.54	29.8	3.4	0.46	28.8	5300

Note that the above qualities do not include the partings between plies that might be incorporated into a mining working section. Therefore, working section qualities will differ from the qualities listed in Table 5.

1.2.9 Comment on Reconciliation to Previous Resource Statements

Previous resource statements prepared by Anglo American Metallurgical Coal (AAMC) and JB Mining Services (in 2016 on behalf of AQC) are aerially restricted within the Dartbrook tenements. In AAMC's case, resources were stated over the area previously deemed open cut mining potential. For the 2016 AQC Statement, no resources were estimated under alluvial lands or the alluvial stand-off zone. Additionally, the 2016

Statement applied a depth cut-off of 350m and excluded areas in the eastern portion of the tenement.

The current Resource Statement has not applied any aerial or depth restrictions for resource estimation. Rather, the resources are classified by proximity to alluvial lands and above and below 450m depth, thus allowing future mining assessment work to be carried out unconstrained.

1.2.10 Competent Persons Statement

The information in this announcement that relates to Exploration Results and Coal Resources is based on, and fairly represents, information compiled or reviewed by Ms Lynne Banwell, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy (No 202047). Ms Banwell is a qualified geologist (BSc (Hons) University of Sydney, 1980) with 30 years' experience in coal geology and over 20 years' experience in resource evaluation and a Principal Consultant of Collective Experience Pty Ltd and an Associate Consultant of GPPH & Associates. She has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to quality as a Competent Person as defined in the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves–*The JORC Code 2012 Edition*'. Ms Banwell consents to the inclusion in the announcement of the matters based on the information in the form and context in which it appears.

1.3 CHECK LIST OF ASSESSMENT AND REPORTING CRITERIA – THE JORC CODE, 2012 EDITION, TABLE 1

The following table provides a summary of important assessment and reporting criteria used for the Dartbrook Project in accordance with the Table 1 checklist in The Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012 Edition). Criteria in each section apply to all preceding and succeeding sections.

SECTION 1 – SAMPLING TECHNIQUES AND DATA

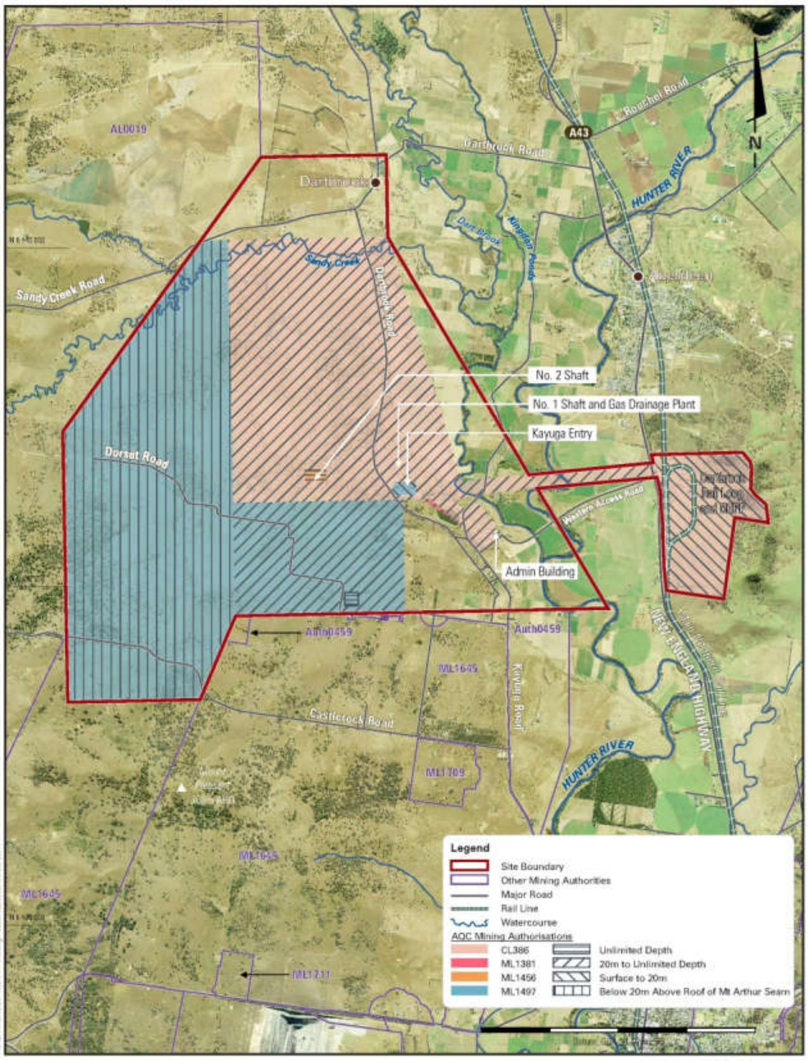
Criteria	Commentary
Sampling techniques	All cored coal seams drilled have been sampled to determine quality. Raw ply samples (coal and non-coal) are taken on known ply boundaries or wherever there is significant variation, based on geophysical or visual distinctions. Roof and floor samples of 0.15m are taken.
Drilling techniques	Slim cores, large diameter cores and non-cored holes.
Drill sample recovery	Core recovery was calculated for every cored hole from the measured core lengths compared to the geophysical logs. A redrill was required where core recoveries were less than 95%, except when due to adverse geological conditions. Sample recoveries were recorded within the geologist's field logs at the completion of each core run.
Logging	Non-cored boreholes are chip sampled every metre with the samples being laid out for lithological logging. Non-cored sections of partially cored boreholes are treated the same way if required. Cored sections of boreholes are logged describing the same characteristics but with extra details.
Sub-sampling techniques and sample preparation	Core samples are boxed at the rig immediately after lithological logging. The boxes are lined and sealed with plastic, those containing coal samples are promptly transported to the core shed, for cool room storage at, or just above 4ºC at all times when not being worked on. Sampling is conducted as soon as practical after geophysical logging and correcting.
Quality of assay data and laboratory tests	All analysis and testing is conducted at NATA (National Association of Testing Authorities) certified laboratories using the relevant Australian Standard testing procedures and a mixture of NATA and ISO proficiency testing as part of the QA process. Laboratories participate in "Round Robin" exercises and quality assurance programs.
Verification of sampling and assaying	On arrival at the laboratory, sample mass is compared with theoretical mass for that core size to check for recovery and thickness loss/inconsistencies. Samples are compared with geophysics to confirm to ensure consistency and check for core loss. If lithological logs are adjusted to geophysics, sample depths are adjusted accordingly. No adjustments have been made to the coal quality data.

Criteria	Commentary
	Analysis results are presented on an air-dried basis.
Location of data points	Cored holes provide coal quality, geotechnical properties and structural information while open holes provide structural details and the interpretation of the geophysical logs also adds some general quality and geotechnical information. Open holes have been used to aid in interpretations of fault and dyke delineation and structural anomalies.
Data spacing and distribution	1122 holes exist in the modelling data, which includes about 20 holes from the neighbouring Mt Pleasant project. Drilling is generally on a 250m grid pattern with a combination of cored and non-cored holes. The grid does not cover the whole area because drilling over the years has been targeted only at the area of interest at the time. The majority of holes were drilled to the Wynn seam.
Orientation of data in relation to geological structure	Drilling has been attempted to maintain hole verticality. As the strata is gently dipping, hole deviation is generally not significant despite the depth of the holes. Downhole deviation logs (where available) are used to calculate seam roof and floor positions in space.
Sample security	Core samples were bagged and labelled with a unique field sample ID. In addition, the field sample No. was placed on a tag and bagged with the sample material. Field sample despatch records were compiled detailing the sample depths, general composition (coal/parting) and intended analyses instructions. On arrival at the laboratory field samples were re-weighed and confirmed against sample despatch advice data.
Audits or reviews	A formal audit of the Anglo 2010 model was undertaken by ASEAMCO. Several internal company reviews have been undertaken. Prior to this resource estimation, a routine model audit of the Palaris 2011 structure model was carried out, ensuring that there were no crossing surfaces and that data ranges made sense. The model was declared fit-for-purpose. The Palaris structure model and the Vulcan structure model generated by JB Mining Services in January 2016 and used for a previous resource statement were used to perform a resource estimation check for a small polygon outside the previously mined area. Volume and mass differences of less than 1% were demonstrated.

SECTION 2 – REPORTING OF EXPLORATION RESULTS

Criteria	Commentary			
Mineral tenement and land tenure status	The project comprises several exploration licences, mining leases and an authorisation as listed below. The ground covered by the various titles is complex, often with two separate titles covering the same areas spatially, but to different depths.			
	Title	Expiry	Surface	Comments
	CL 386	19.12.33	Subsurface + minor surface areas	Excludes surface and 20 m below Surface to unlimited depth, covering No1 Shaft Surface to 20 m below, covering No2 Shaft & ML1381
	ML 1497	5.12.22	Subsurface + minor surface areas	Surface to 20 m below Dartbrook JVs Excludes surface and 20 m below Excludes surface and below to 20 m above roof of Mt Arthur seam Surface to unlimited depth
	ML 1456	26.09.20	Surface	Surface to 20 m below, covering No2 Shaft
	ML 1381	23.10.16 Under renewal application	Subsurface	Excludes surface and 20 m below, adjacent to Wynn seam decline
	A 256	2.5.15 Under renewal application	Surface	Surface to 20 m below (above part ML1497) Surface to depth of 900 m below Australian Height Datum (AHD)
	EL 5525	21.9.16 Under renewal application	Surface + subsurface	Surface to 20 m above roof of Mt Arthur seam (above part ML1497) Between 40m below the surface and 20 m above roof of Mt Arthur seam (above part ML1497)
	EL 4574	7.4.15 Under renewal application	Surface	Surface to 20 m below (above part CL386) Surface to unlimited depth

Criteria	Commentary			
	EL 4575	23.5.16 Under renewal application	Surface	Surface to 20 m above roof of Mt Arthur seam (above part ML1497) Surface to depth of 900 m below Australian Height Datum (AHD)



DARTBROOK MINE

Mining Leases

FIGURE 3.1

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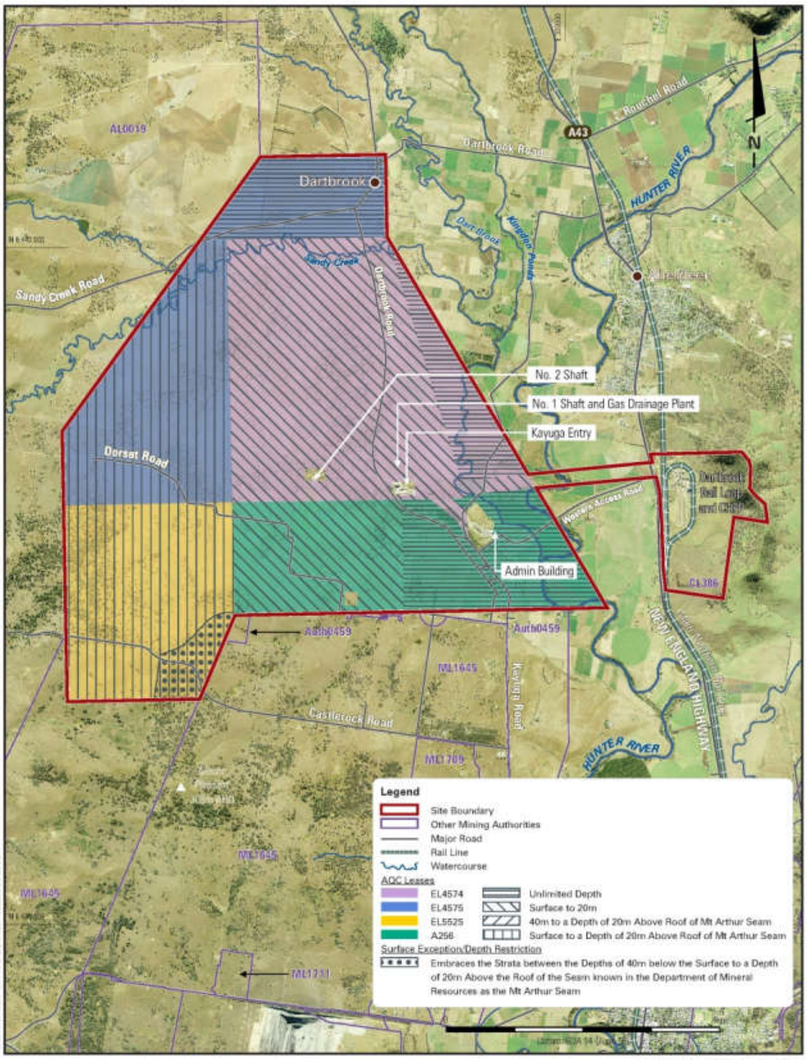
<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td></td><td>


DARTBROOK MINE
Exploration Leases
FIGURE 3.2
</td></tr>
<tr><td>Exploration done by other parties</td><td>
Initial coal exploration of the Dartbrook area was carried out in the early 1970s by Peabody Coal.
The Department of Mineral Resources (DMR) undertook further drilling in the late 1970s.
From 1980 to 1983 a major drilling programme of the area now known as ML386 was undertaken by the Bellambi Coal Company to allow an open cut feasibility study to be completed. This programme comprised 46 cored and 129 non-cored holes.
In 1989 17 cored holes were completed during for the UG mine pre-feasibility study, including bulk sampling for combustion testing.
During the period of 1992 to 1993 nine cored holes and 12 non-cored holes were drilled
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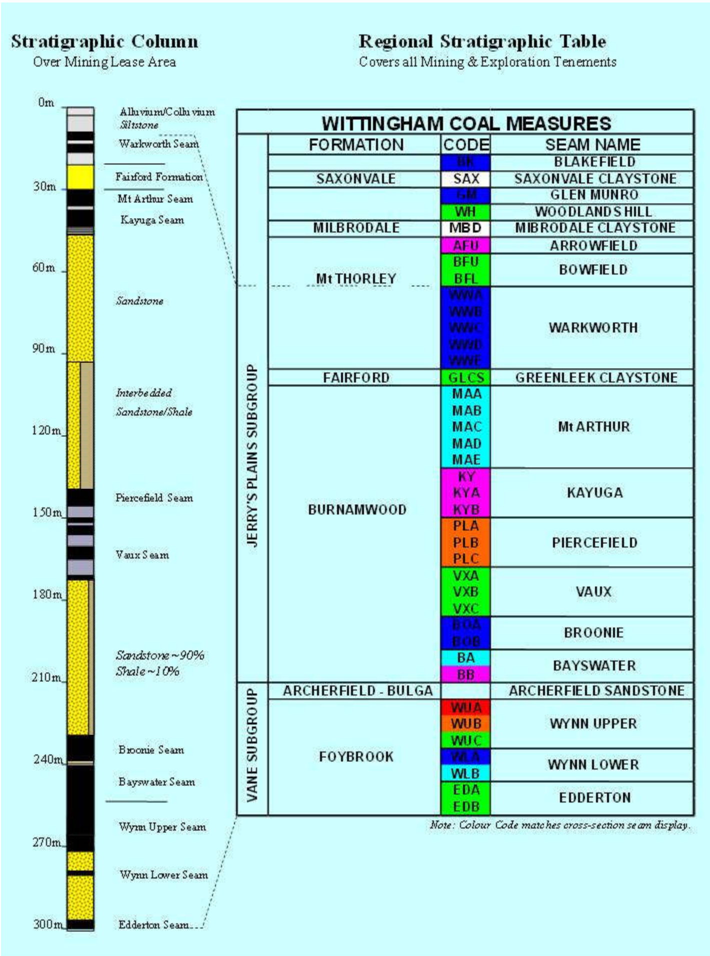
Criteria	Commentary
	along the line of the Hunter Tunnel, and an additional three non-cored holes were drilled along the site of the personnel and equipment access (Western Drift) in the south-east corner of the main lease area. During the period 1993 to 1995, exploration drilling and associated evaluation programmes comprised: • 44 geophysically logged partly cored holes (HQ), drilled to enhance existing seam gas, geotechnical, coal quality, structural and stratigraphic information and to investigate strata permeability, seam gas content and composition in the vicinity of the Hunter Tunnel; and 67 non-cored holes drilled to assess the likelihood of structural disturbances particularly within the initial longwall blocks; • a 2D surface seismic survey to identify any potential structural dislocations; • a high-resolution ground magnetics survey in association with previous magnetic surveys and surface trenching to target magnetic anomalies and confirm igneous dykes and plugs, particularly over the southern half of the first four longwall blocks; • various mapping, sampling and analyses of in-seam workings for definition, prediction and reconciliation of structural features, product quality and coal preparation parameters; and • four large diameter (200 mm) core holes to assess likely run-of-mine size distribution and coal preparation plant performance characteristics. In 1996, Rust PPK Pty Ltd completed reports on geotechnical and groundwater assessments The findings of these reports were derived from detailed geotechnical logging and joint orientation and field and laboratory materials testing of the six 1996 exploration HQ cores, review of existing groundwater data, measurement of open hole water levels, bulk hydraulic conductivity tests, piezometer installation, discrete zone hydraulic testing and groundwater chemistry determinations in selected 1996 exploration boreholes. Further drilling, testing and allied investigations were conducted within ML386, A256, EL5525 and EL4575 during 1997 and 1998 as part of ongoing Dartbrook Mine development and exploration programs. The 1999 Exploration Programme was principally designed to: • evaluate, confirm and upgrade the structure, coal quality, geotechnical, groundwater and seam gas regimes of the most prospective Kayuga Seam underground resource within A256 and the eastern half of EL5525 to a status suitable for detailed feasibility studies; and • provide an indicative evaluation of the structure and coal quality of the western extension of this Kayuga Seam underground resource within the western half of EL5525. The 1999 exploration programme included the drilling of 73 non-cored holes and 15 partly cored HQ core holes. In addition, the programme included a high-resolution ground magnetic survey, coal quality analysis, geophysical logging, geotechnical, groundwater and seam gas investigations. An exploration programme over western EL5525 and EL4575 was carried out in early

Criteria	Commentary
	2000 comprising a detailed infill (ground) magnetometer investigation and drilling programme including coal quality, geophysical, geotechnical logging, groundwater and seam gas investigations. This exploration programme comprised the drilling of 28 non-cored holes, 15 partly cored HQ holes and two large (200mm) diameter cored holes). From 2001 to 2005, 30 partly cored holes and eight non-cored holes were drilled. These boreholes specifically targeted the deeper underground minable seams (Kayuga, Piercefield, and Wynn Seams) and were drilled for the purpose of evaluating underground mining options, increasing the resource status of the area, and supporting the underground mining operations. Exploration during the period January to May 2006 targeted the Kayuga, Piercefield and Vaux seams. Nine holes were completed with three holes being gas tested and two being Stress and Permeability tested. Post closure of the mine, a revised exploration programme was implemented, to focus on collecting samples for coal quality and geotechnical testing of the upper sequence of seams. Of the 26 planned HQ boreholes, 17 were completed. The 2007 exploration programme focused on obtaining coal samples for coal quality analysis and overburden/interburden samples for geotechnical testing. A total of 39 slim (HQ) core holes were planned, of these nine were carried over from the incomplete 2006 programme. Five of the slim core holes have been converted to piezometers and an additional two slim non-core holes were drilled and converted to piezometers. Three large diameter (200mm) core holes were drilled to obtain detailed pre-treatment and washability data for CHPP simulation. The 2008 drilling programme commenced in January 2008 to obtain more coal quality analyses and overburden/interburden samples for geotechnical testing. 1 slim (HQ) fully cored hole was completed and two redrills and a relocation of one of the abandoned holes from the 2007 exploration programme Four slim non-cored holes were drilled on the tertiary sediments along the Hunter River for ground water monitoring piezometers. The 2009 Exploration program targeted the upper sequence of seams in the western and south-western areas of the lease. It included 14 fully cored and partly cored holes and 10 non-cored holes. Exploration in 2010 was confined to 1 HQ redrill in the southwest.
Geology	The Dartbrook coal resources are located on the western side of the Muswellbrook Anticline. Strata of the Permian Wittingham Coal Measures outcrop in the area and dip gently to the west. Underlying marine sediments of the Maitland Group outcrop approximately three kilometres to the east, on the eastern side of the Aberdeen Thrust. Further to the east lies the northern limit of the Sydney Basin, the Hunter Thrust. The Greta Coal Measures occur below the Maitland Group. The Wittingham Coal Measures contain the coal-bearing Jerrys Plains Subgroup and the Vane Subgroup in the Dartbrook area. Elsewhere in the basin, these subgroups are separated by the Archerfield Sandstone, a massive, well sorted sandstone unit. However, at Dartbrook, the Bayswater seam at the base of the Jerrys Plains Subgroup has coalesced with the Wynn seam, the top of the Vane Subgroup. The Jerrys Plains Subgroup is divisible into five main coal-bearing formations of which the basal four, the Malabar, Mt Ogilvie, Mt Thorley and Burnamwood Formation, occur

Criteria	Commentary
	at Dartbrook. Seams of the subgroup show a high degree of splitting, particularly towards the east, and major seams are generally represented by several plies /splits. Interburdens in the Jerrys Plains Subgroup are generally coarse-grained in the upper sequence, above the Vaux Seam, and become progressively finer with depth to the Bayswater Seam. These interburdens generally comprise interbedded sandstones, siltstone, and mudstones with minor claystones and tuffs and occasional conglomerates and thin siderite. Non-coal units in the Vane Subgroup are generally fine to medium grained sandstones. Tertiary basalts and dolerites intrude the Permian Coal Measures and are present as lava flows in the Liverpool Ranges to the northwest of Dartbrook. Of the seams under evaluation in this statement: the Arrowfield, Bowfield and Warkworth Seams are of the Mt Thorley formation. The Mt Arthur, Kayuga, Piercefield, Vaux, Broonie and Bayswater Seams are of the Burnamwood Formation, and the Wynn and Edderton seams are in the underlying Foybrook Formation.



Subgroup	FORMATION	CODE	SEAM NAME
JERRY'S PLAINS SUBGROUP		BK	BLAKEFIELD
	SAXONVALE	SAX	SAXONVALE CLAYSTONE
		GM	GLEN MUNRO
		WH	WOODLANDS HILL
	MILBRODALE	MBD	MIBRODALE CLAYSTONE
	Mt THORLEY	AFU	ARROWFIELD
		BFU BFL	BOWFIELD
		WWA WWB WWC WWD WWE	WARKWORTH
	FAIRFORD	GLCS	GREENLEEK CLAYSTONE
	BURNAMWOOD	MAA MAB MAC MAD MAE	Mt ARTHUR
		KY KYA KYB	KAYUGA
		PLA PLB PLC	PIERCEFIELD
		VXA VXB VXC	VAUX
		BOA BOB	BROONIE
		BA BB	BAYSWATER
VANE SUBGROUP	ARCHERFIELD - BULGA		ARCHERFIELD SANDSTONE
	FOYBROOK	WUA WUB WUC	WYNN UPPER
		WLA WLB	WYNN LOWER
		EDA EDB	EDDERTON

Fault trends are NW and ENE. Faults with significant displacements are confined to the Kayuga Fault Zone, its North-Western Branch, and the WNW Fault Zone. Most other

<table>
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Coals at Dartbrook can be classed as high volatile bituminous coal. It is slightly lower in rank than the coals to the south in the Hunter Valley. The raw coal inherent moisture ranges from 2.0% to 8.0%, averaging 4.3%.
The coal will require beneficiation for export markets. It is able to produce a range of Thermal coal products between 10 to 20% Ash adb.</td></tr>
<tr><td>Drill hole Information</td><td>Due to the large amount of borehole data for Dartbrook (~100,000 lines), the tables of information have been excised from this table and included as Appendices H, I & J to the Resource Statement.
<table>
<tr><th></th><th>No. Holes</th></tr>
<tr><td>In Database</td><td>1123</td></tr>
<tr><td>In Model</td><td>1026</td></tr>
<tr><td>With some Geophysics</td><td>547</td></tr>
<tr><td>With Raw CQ Analyses</td><td>355</td></tr>
<tr><td>With Washed CQ Analyses</td><td>343</td></tr>
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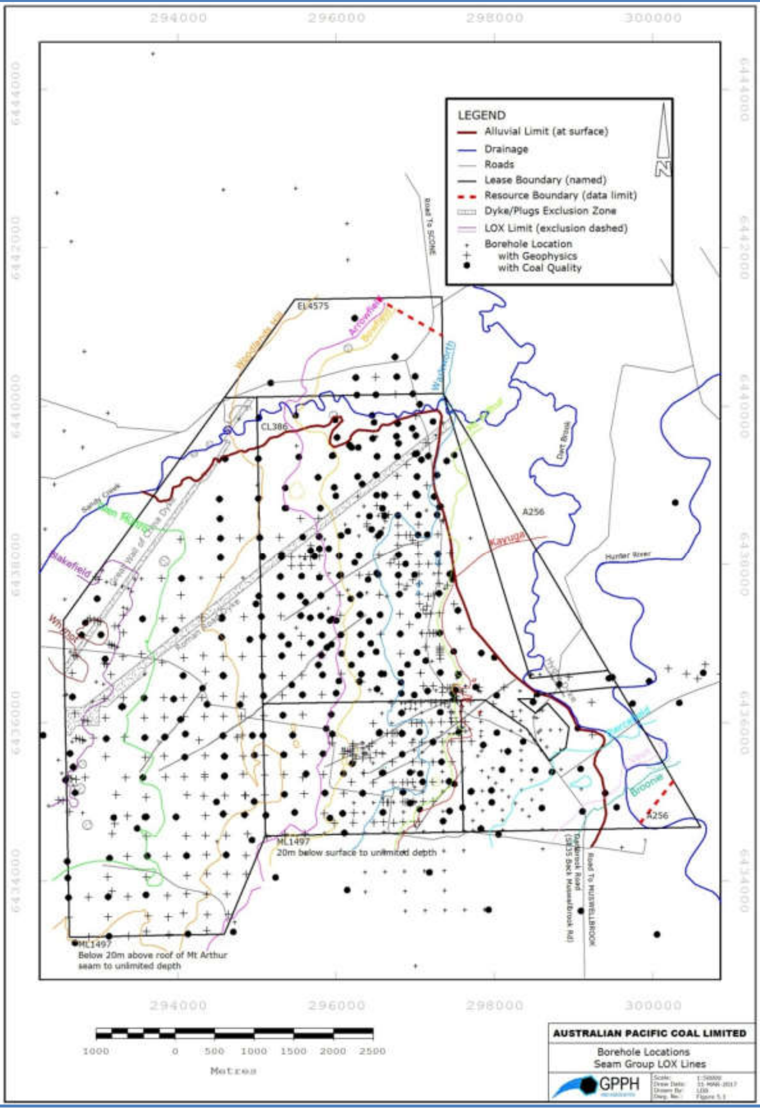
Criteria	Commentary
	
Data aggregation methods	All coal plies where multiple coal quality samples were taken were given composite coal quality values. These composite values were calculated using Maptek's Vulcan modelling software (Coal Compositing application). Density values were weighted by thickness; all raw coal parameters were weighted by thickness and density (ad), i.e., mass weighted. Reported coal quality is for ply only.
Relationship between mineralisat-ion widths and intercept lengths	Seam thicknesses have been reconciled to geophysics where available to ensure accuracy. Coal resource modelling and estimation methods adjust for seam thickness versus the apparent thickness.
Diagrams	Due to the large number of accompanying plans (for all 111 modelled plies), no plans are embedded in this table. Rather they have been embedded in the main text of the

Criteria	Commentary
	Resource Statement where appropriate or attached as Appendices. Please refer to Appendices B, C, D & E for Resource Area, Structure Thickness, Raw Ash and Structure Floor plans respectively.
Balanced reporting	All available validated data has been included in the geological model and associated resources report. Coal resources are report by ply, confidence level (Measured, Indicated & Inferred), depth and tenement.
Other substantive exploration data	2D seismic surveys provide substantive information on the structure of the area, particularly with respect to faulting. Magnetic (airborne & ground) have been used to delineate dykes and plugs. Underground mine survey data supplements drilling particular for dyke and fault definition. Geotechnical, hydrological and gas testing and studies have been carried out.
Further work	Previous studies have this deposit at pre-feasibility stage. Studies beyond this will require additional drilling to: • raise the status of some resources within possible mine plans to measure status; • to add further definition to LOX line; • to provide additional coal quality information on less well sampled seams/plies; and • to gather additional geotech data.

SECTION 3 – ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria	Commentary
Database integrity	All borehole data have been stored in an acQuire database, which incorporates automated validation procedures. Lithological logs, wireline geophysical logs, assay results and coal intersection depths have been reconciled in previous modelling and resource estimations. Spot checks of intervals against geophysical logs reveal no systematic errors.
Site visits	The Competent Person has visited the site, toured the underground workings and the site facilities. The Competent Person has extensive experience with Hunter Valley coal deposits, with on-the-ground experience at Mount Arthur, Hunter Valley Operations, Ravensworth, United, Wambo, Mt Thorley-Warkworth, and Mt Owen.
Geological interpretation	The geological interpretation for this resource estimate is based in the integration of all borehole and coal quality data. There is sufficient drilling data to allow an unambiguous interpretation of the area. The interpretation is consistent with previous work on the deposit.
Dimensions	The Dartbrook resource is approximately 6.4 km along strike by 5 km downdip. The area bounded by the tenements reported in this statement is 3,832 hectares. The resource dips to the northwest and the lowest seam is ~520m deep in the west.
Estimation	Geological modelling was carried out by Palaris using Minex software.

Criteria	Commentary
and modelling techniques	Coal quality modelling and resource estimation has been carried out by the Competent Person using Version 9 of Maptek's VULCAN 3-D geological modelling software. The model is of the coal plies only (not working sections) and with waste modelled as a default. Ply structure modelling (10x10m grid) is based on triangulation of the structure roof and floor intercepts corrected for borehole deviation. Coal quality models (100x100m grid) are generated using the Inverse Distance interpolation (Power =1, points =5).
Moisture	Air dry Relative Density and Inherent Moisture are modelled from directly from analytical data for each ply. *In situ* Moisture is calculated using the seam average Moisture Holding Capacity using the ACARP Report C10041 formula as follows: • *In situ* Moisture = 1.1431 x Moisture Holding Capacity (MHC) +0.348. For an MHC of 8.0% the calculated average *in situ* Moisture is 9.5%.
Cut-off parameters	Minimum ply thickness for resource calculation is 30cm. A cut-off grade of 45% ash has been applied. Strip ratio to the basal seam is always <6:1 and amenable to assessment as an open cut resources. Western boundary of the resource is defined by the lease boundaries.
Mining factors or assumptions	A 2011 pre-feasibility study has indicated the deposit is viable for large-scale deep open cut mining. Further mining studies will be required to determine the most appropriate open cut mining method.
Metallurgical factors or assumptions	This coal resource estimation is based on the assumption that most of the coal will require beneficiation prior to export, allowing a range of export-grade thermal products to be produced.
Environmen-tal factors or assumptions	Resources occurring under the Hunter River alluvial lands have been estimated, but classified as underground potential only.
Bulk density	*In situ* density has been estimated using the Preston & Sanders formula using: • Air dried Relative Density and Inherent Moisture modelled directly from analytical data for each ply. • In situ Moisture calculated from MHC as detailed previously.
Classification	The criteria adopted to determine the resource status are broadly those outlined in Guidelines for the Estimation and Classification of Coal Resources – 2014 Edition prepared by the Coalfield Geology Council of New South Wales and the Queensland Resources Council. The salient points for resource categorisation are: • A quality point of observation (POB) for each ply is defined as a cored hole with coal recovery of >90 % and having raw ash data. NB. most samples with raw ash data have corresponding washability data (either analysed or interpolated – see section 6.5) which will support future reserves estimation. Measured and Indicated resource limits are defined

Criteria	Commentary
	by quality POBs. • A structural point of observation for each ply is defined as a ply borehole intercept with downhole geophysics and/or a fully cored section. The most of structural boreholes have downhole geophysics. Inferred resource limits are defined by quantity POBs. • Supporting data for coal continuity are holes with downhole geophysics and 2D seismic surveys over the area. • The project area is considered to be a single structural domain, with the dykes being exclusion zones rather than domain boundaries. • Overall confidence in the geological interpretation of the deposit is high. This is due to the number of boreholes and the relatively low variability shown by the laterally consistent seam dip and lack of structural domain boundaries. The area has been underground mined in the Wynn Upper and Kayuga seams, providing direct evidence of the coal continuity in the mined seams. • The igneous geology is well understood and underground mining shows that dykes and plugs have a very limited effect on the quality of the coal in the contact zone. • Ply thickness contours indicate strong continuity and consistency with local trending. Significant effort has been put into detailed ply correlations across the deposit. The correlation is aided by good stratigraphic markers and facilitated by downhole geophysics and detailed core logging. • The density and location of coal quality points of observation (POB) and the consistency of coal quality data and ply/working section thickness, based on statistical analysis and spatial distribution. • Raw ash is not as consistent as the ply thickness but it is still reasonably consistent with low coefficients of variation for individual plies. The consistency of raw coal ash is a feature of this area and provides additional confidence in the resource classification. • Results from 2016 geostatistical analyses, while not exhaustive, indicate that the borehole spacing criteria used in the previous assessments is conservative (Measured=500m, Indicated=1000m, Inferred=2000m). Therefore, the classification is broadly based on these spacings, but extend over short distances (~100m for measured, ~150m for indicated) between adjacent boreholes where ply thickness and ash show good continuity. • Extrapolation of the resource limits beyond the last POB to approx. 2km. This is in keeping with previous resource estimations, and it is also supported by the regional geology, observations and the author's knowledge of adjacent leases.
Audits or reviews	No audit of this resource estimation has been carried out to date. The Palaris structure model and the Vulcan structure model generated by JB Mining Services in January 2016 and used for a previous resource statement were used to perform a resource estimation check for a small polygon outside the previously mined

Criteria	Commentary
	area. Volume and mass differences of less than 1% were demonstrated.
Discussion of relative accuracy/ confidence	The lateral consistency of the coal ply structure (thickness and position) combined with adequate borehole density (spacing in the order of 250m) provides high confidence in structural definition over the majority of the deposit. Coal quality is marginally less laterally consistent and the coal quality borehole density (spacing 250m to 500m) is sparser. Measured and Indicated resource classification is essentially determined by quality POBs; Inferred by structure POBs. Confidence is reflected in the categories applied to the resource estimates.