

Kestrel Hub Table 1

The following table provides a summary of important assessment and reporting criteria used at Kestrel Mine for the reporting of exploration results, Mineral Resources and Ore Reserves 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	<ul style="list-style-type: none"> A combination of open hole (predominantly for structural definition) ,cored (for coal quality (CQ), geotechnical and gas sampling) and channel sampling have been used.
Drilling techniques	<ul style="list-style-type: none"> 1,473 drill holes (346,709 metres) support the Resource estimate. Cored drill holes represent 39% of the total holes and open holes 61%. The drill holes are up to 609m in length and average 233m. The drill holes were all nominally recorded as vertical; boreholes deviated by more than 5% were to be re-drilled by contractor. Coring has predominantly been done using a HQ3-sized (63mm) bit and open hole drilling to an equivalent hole diameter size. In addition a limited number of large diameter (LD) holes have been drilled: 22 holes at 150mm (6"), and 14 holes at 200mm (8") diameter sizes.
Drill sample recovery	<ul style="list-style-type: none"> Standardised Rio Tinto Coal Australia logging systems are utilised for all drilling logging and sampling. Core recovery is recorded by the geologist while logging the drill hole. . If core recovery for a coal ply is less than 95%, then that section of the hole is redrilled to ensure a representative sample is taken. Ply samples are checked for representativeness using a theoretical mass that is determined using analysed relative density, sample thickness and core diameter prior to composite definition. Open hole chip recovery is assessed qualitatively by the rig geologist.
Logging	<ul style="list-style-type: none"> Core is geologically and geotechnically logged and open hole chip samples are taken every 1m and logged for lithology changes. Logging for lithology, grainsize, weathering and hardness is conducted using standard dictionary definitions. Colour and any additional qualitative comments are also recorded. All core is photographed on both a core table (0.5m increment) and a 5m tray basis. Chips are photographed as laid out by 1m intervals. All holes are logged using a comprehensive suite of downhole geophysics tools (calliper, gamma, density, neutron, sonic), with acoustic scanner (for geotechnical assessment) also run on cored holes.
Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> Core sampling is completed at the drill site and based on set of standard criteria (determined by lithology and structure). Samples are bagged at the drill site and then transported to an external accredited laboratory for analysis as a complete hole batch All samples are weighed, air-dried and then re-weighed before being drop shattered from 2m ten times. The product is dry sized at 25, 16, 8, 4, 2, 1, 0.5 (ww) mm and weigh size fractions. The size fractions are then recombined into one whole sample and dry tumbled for three minutes. The sample then goes through wet pre-treatment, float/sink and froth flotation testing before undergoing raw coal analysis. CQ analysis is by a three stage method involving raw analysis on all plies followed by washability and product testing on composite samples as defined by the project geologist.. All sample treatment and analysis is conducted according to procedures which adhere to Australian (or International equivalent) standards in a National Association of Testing Authorities certified laboratory.
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> Non-formalised quality assurance/quality control (QA/QC) involving duplicate samples is completed. In addition, Rio Tinto Coal Australia checks laboratory round robin and basic reproducibility tests provided by the primary laboratory. All results are assessed via cross-plots and statistics for precision and accuracy.

Verification of sampling and assaying	<ul style="list-style-type: none"> All CQ sampling and analysis is overseen and checked by other Rio Tinto personnel. Data transfer from site is covered by an agreed protocol. This system documents primary data, data entry procedures, data verification, and data storage (physical and electronic) into a geological database.
Location of data points	<ul style="list-style-type: none"> The topographic surface is derived from a combination of aerial survey data and drill hole collars. All surveyed coordinates are within Australian Geodetic Datum 1984 Zone 55. Drill hole collars were surveyed post drilling by licensed surveyors using differential GPS with an accuracy of $\pm 10\text{mm}$. Downhole surveying has been undertaken using downhole verticality and calliper tools.
Data spacing and distribution	<ul style="list-style-type: none"> Drill hole spacing for core holes is on an equilateral triangle grid of 500m or less. Open holes spacing is on a 250m or less equilateral triangle grid. All core samples are composited within defined seam boundaries.
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> The Coal Measures show a relatively consistent layering and are not subject to steep dips. The orientation of drilling is therefore suitable for flat lying stratified deposits.
Sample security	<ul style="list-style-type: none"> Core/chip samples are taken at the drill site and then transported daily to the refrigerated Kestrel storage area. Once the hole has been completed the samples are transported to the laboratory via a dedicated courier service, again under refrigeration.
Audits or reviews	<ul style="list-style-type: none"> Kestrel has had three audits completed in the past seven years, they include: <ul style="list-style-type: none"> An external audit of the structural and CQ databases, and models was completed by Xenith Consulting in 2007. No material errors were noted in the model, only a few minor discrepancies were identified. The model was considered to be fit for the purposes of resource and reserve estimation and mine planning. An external audit of the CQ database was completed by McMahon Coal Quality Resources in 2007. This audit concluded that the level of errors detected unlikely to significantly affect modelled CQ values. An internal technical evaluation group (TEG) peer review of the CQ estimate of coking coal grade (fluidity and rank), and Kestrel Mine extension (KME) Project valuation in 2007 found sufficient confidence in CQ grade estimates for the KME Project to be approved in December 2007. These reviews concluded that the fundamental data collection techniques are appropriate.

SECTION 2 REPORTING OF EXPLORATION RESULTS

Criteria	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> The Kestrel West Project and Kestrel Mine are managed by Kestrel Coal Pty Limited on behalf of the Kestrel Coal Joint Venture. The Joint venture participants are: <ul style="list-style-type: none"> Queensland Coal Pty Ltd (QCPL) (share: 80%) Mitsui Kestrel Coal Investment Pty Limited (Mitsui) (share: 20%). Kestrel Mine contains the following leases and licences: <ul style="list-style-type: none"> Four mining leases (ML) covering 9507.332ha Three mineral development licences (MDL) totalling 14,089.6033ha, of which one MDL (totalling 12,608.293ha) is pending approval for grant of renewal. The Kestrel West Project is contained within MDL 182 and all leases are in good standing. Previously Kestrel and Kestrel West have been reported separately for resources and reserves.

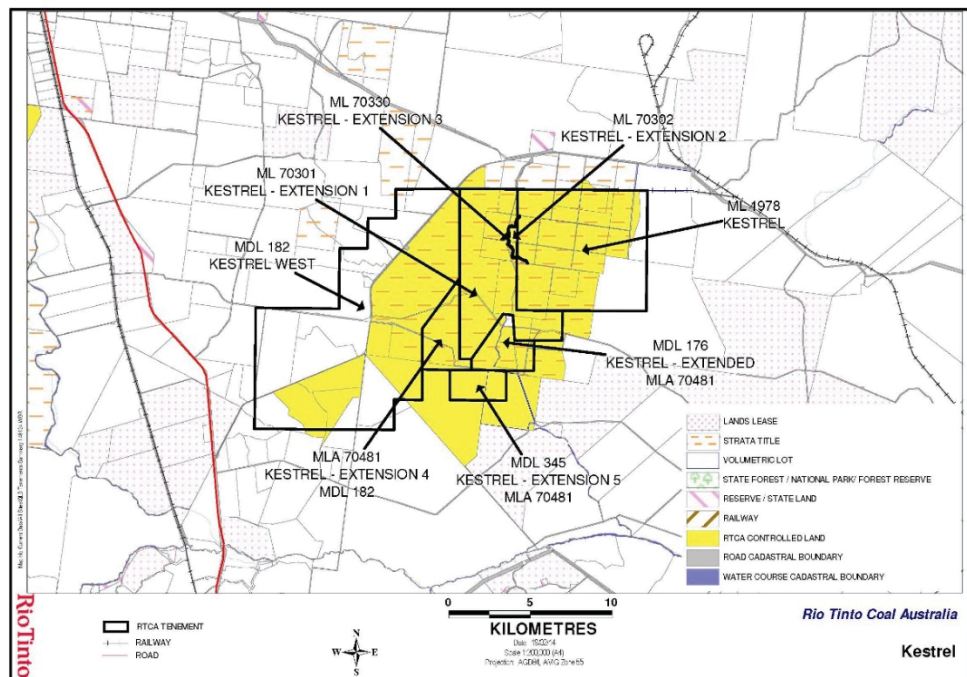


Figure 1 Kestrel tenement titles

Exploration done by other parties

- Mid to late 1960s: Regional exploration for open-cut coking coal was undertaken by the Bellambi Coal Company and Mount Isa Mines Ltd.
- 1971–1975: The Queensland Department of Mines drilled 37 holes.
- 1982: The Denham Coal Associates Joint Venture (DCAJV) was awarded tenure.
- 1982–1984: DCAJV drilled 280 drill holes.
- March 1985: A feasibility study confirmed the technical and economic feasibility of a single longwall operation.
- 1988–1990: An exploration drift was completed.
- August 1990: Mine construction commenced.

Geology

- The Kestrel deposit is located in the southwest part of the northern Bowen Basin. The northern Bowen Basin is the northernmost part of the 1800km long Bowen–Gunnedah–Sydney Basin, a meridional accumulation of Permian and Triassic sediments in eastern Queensland (QLD) and New South Wales (NSW).
- The Kestrel deposit is located on the Comet Platform on which deformation is limited to broad, low amplitude basin and dome structures. The Kestrel resource is located on the western limb of the gently south-westerly plunging Talagai Syncline which defines the prevailing southerly to south-easterly regional dip in the mine area. The sequence at the Kestrel deposit comprises the German Creek Formation overlain by the Macmillan and Fairhill Formations.
- At Kestrel, coal is mined from the German Creek Seam which is hosted in the German Creek Formation.

Drill hole information

- Drilling data summary from Rio Tinto Coal Australia drilling campaigns- note that this table includes only open vertical holes and/or cored holes

Drilling Program	Hole Type				Total Holes
	Open Hole	HQ-3 Core	Large Core (150mm/200 mm)	Wegged	
1999/2000	10	36	5	4	55
2000 Crinum Fault	1	11	0	0	12
2001	6	1	0	0	7
2004	36	26	0	0	62
2006	27	65	0	0	92
2007	8	0	0	0	8
2009	5	0	0	0	5
2011	1	6	0	0	7
2012	11	44	0	0	55
2013	1	0	0	0	1
2014	2	15	0	0	17
2015	3	0	0	0	3
Totals	111	204	5	4	315

- Since the previous resources upgrade in 2009 there have been an additional 91 drillholes added due to new drilling or database updates

Data aggregation methods

- Ply samples are combined to create composites (for washability and product coal analyses) representing mineable seam working sections.

Relationship between mineralisation widths and intercept lengths

- Based on drilling techniques and stratigraphy, the coal seam intercepts therefore approximate the true coal thickness.

Diagrams

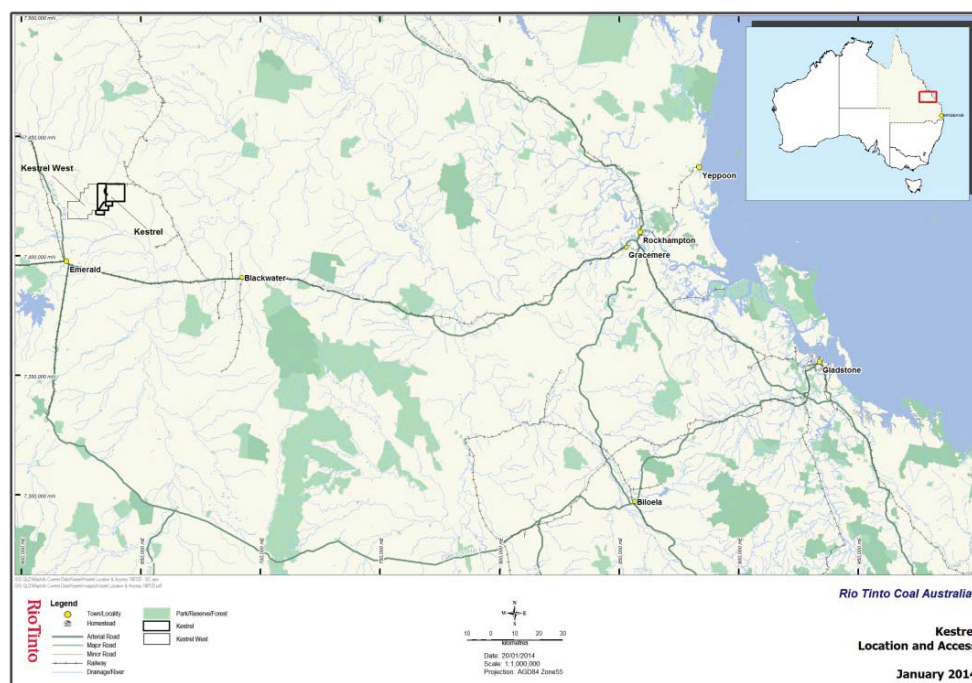
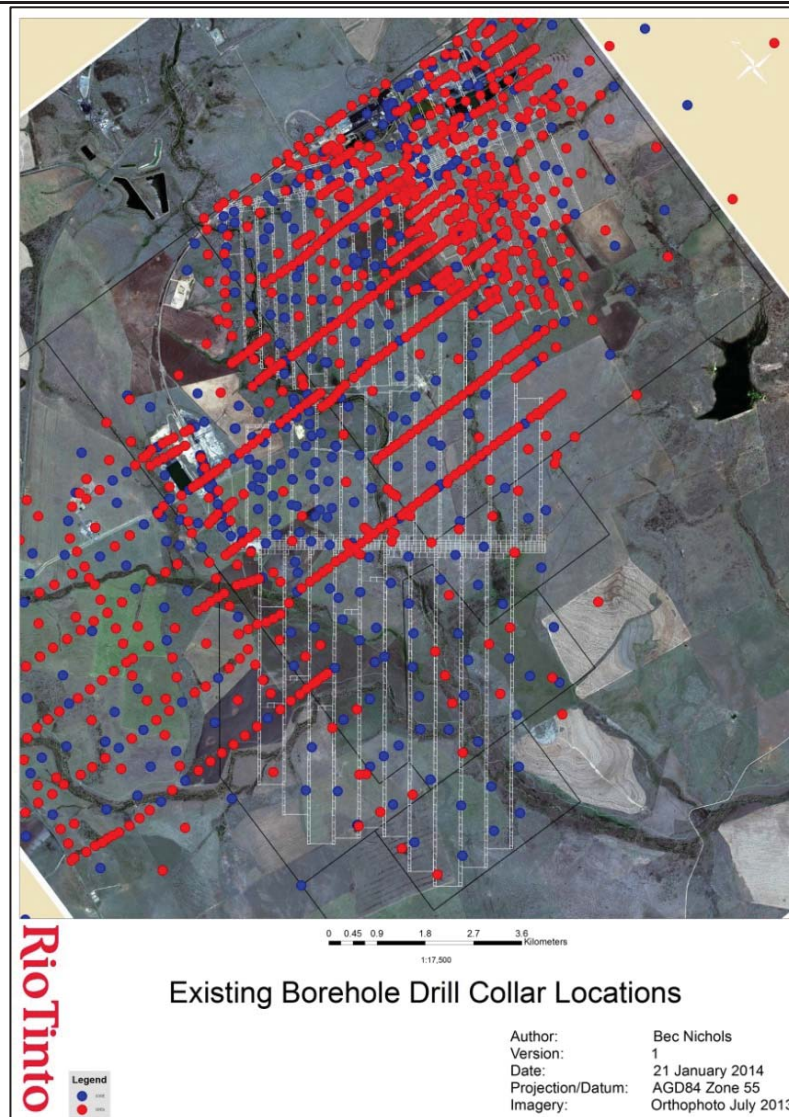
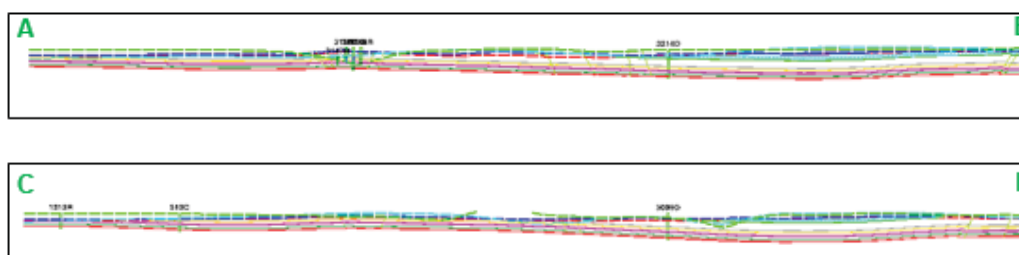
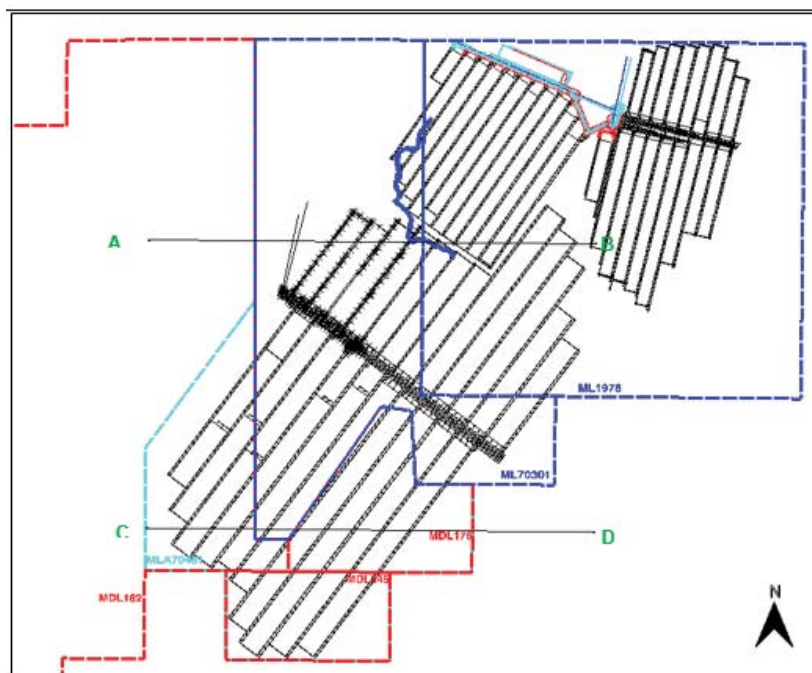


Figure 2 Kestrel location



Open holes (blue); cored holes (red)

Figure 3 Drill collar locations



Cross-section A-B is west to east / cross-section C-D is west to east

Figure 4 Kestrel Cross-sections

Balanced reporting	<ul style="list-style-type: none"> Not applicable. Rio Tinto Coal Australia has not specifically released exploration results for these deposits.
Other substantive exploration data	<ul style="list-style-type: none"> Apart from surface exploration drilling, data has been collected from underground drilling and channel sampling.
Further work	<ul style="list-style-type: none"> Drilling (surface and underground) for both pre-production and strategic purposes (including analytical (CQ, geotechnical, gas) sampling) will be ongoing

SECTION 3 - ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria	Commentary
Database integrity	<ul style="list-style-type: none"> All drill hole data are securely stored in a database which is stored on the Brisbane server and is backed up daily. Data are validated at the drill site and also prior to loading into the GDB database. The GDB database contains automated validation processes (load limits) which are activated during data loading and prevent un-validated data being loaded.
Site visits	<ul style="list-style-type: none"> The Resources Competent Person visited Kestrel in 2015.
Geological interpretation	<ul style="list-style-type: none"> The deposit is well known and tabular (layer-cake) with all major structures defined. Infill drilling and mining exposure and mapping has supported and refined the model. The current interpretation is thus considered to be robust.
Dimensions	<ul style="list-style-type: none"> The deposit trends 17.5km northeast to southwest and is 10km in width. The deposit

	extends to a depth of 490m below the topographic surface.
Estimation and modelling techniques	<ul style="list-style-type: none"> Modelling was undertaken using resource modelling software. For structural modelling a Finite Element Method (FEM) interpolator is used. For CQ an inverse distance squared interpolator with search radius of 5000m is used. All surfaces and coal qualities are interpolated into grids with 50m × 50m node spacing. The model is of the coal seams only with waste modelled by default and not assigned any grade. Resource estimates are therefore of the coal seams only and restricted on a whole seam group basis only. Modelling is completed on an iterative basis with checking of cross-sections and contours of structural and CQ attributes. Database values are posted on contours as a further check. A volume/tonnage check between the model and its predecessor are completed as a final validation. The previous and separate (for Kestrel and Kestrel West) resources upgrade was based on separate resource models – these models have been merged for this update.
Moisture	<ul style="list-style-type: none"> All tonnages are estimated on an in situ moisture basis, which is determined as 6%. This is based upon imprecise relationships between air-dried and equilibrium moisture, with in situ moisture tempered by knowledge coal rank and type, water addition during mining, and plant feed moisture.
Cut-off parameters	<ul style="list-style-type: none"> Nominally coal is washed to produce three types of products: <ul style="list-style-type: none"> a primary product 6.5% air-dried ash high volatile hard coking coal a secondary product 13% air-dried ash thermal coal 8.5% air-dried ash high volatile semi-coking coal created by blending the primary and secondary washery products.
Mining factors or assumptions	<ul style="list-style-type: none"> Development of this Mineral Resource estimate assumes mining using standard Rio Tinto Coal Australia equipment. The assumed mining method is development and longwall methods and, in addition, bord and pillar style extraction has been considered.
Metallurgical factors or assumptions	<ul style="list-style-type: none"> It is assumed that a combination of density separation (magnetite/water) and fines flocculation processes used by Rio Tinto Coal Australia will be applicable for the processing of Kestrel coal.
Environmental factors or assumptions	<ul style="list-style-type: none"> Rio Tinto Coal Australia has an extensive environmental and heritage approval and compliance process. No issues are expected that would impact on the Mineral Resource estimate.
Bulk density	<ul style="list-style-type: none"> Coal relative density is currently modelled at a 6% in situ moisture basis. Conversion to the in situ moisture basis has been carried out by applying the Preston and Sanders method using the equation: $\text{relative density (in situ)} = \frac{RD_{ad} * (100 - M_{ad})}{100 + RD_{ad} * (ISM - M_{ad}) - ISM}$ <p><i>Where: RD_{ad} = relative density, air-dried basis; M_{ad} = moisture, air-dried basis, ISM = in situ moisture.</i></p>
Classification	<ul style="list-style-type: none"> The classification of the Mineral Resources into varying confidence categories is based on a standardised process of utilising points of observation (PoO) (i.e. drill holes) according to their reliability and value in estimation. The PoO are used to categorise structure and quality continuity (or both) or support continuity. Radii of influence are then plotted around PoO maps for structure and quality. The radii of influence were based on an initial geostatistical study and moderated by consideration of the perceived and observed regional variability in structure and CQ for the German Creek Seam. Areas of confidence (low, medium, high) are produced from these plots (structure, CQ for each seam group) and these are finally combined to produce areas of Measured, Indicated and Inferred which are used to subdivide the resource tonnage estimates. In summary radii are 500m radii for high, 1,000m for medium and 3,000m for low confidence respectively The Competent Person is satisfied that the stated Mineral Resource classification reflects the geological controls interpreted and the estimation constraints of the deposits.
Audits or reviews	<ul style="list-style-type: none"> Kestrel has had two audits completed in the past seven years on the estimation and reporting of Mineral Resources, they include:

	<ul style="list-style-type: none"> ○ An external audit of the structural and CQ databases, and models was completed by Xenith Consulting in 2007. No material errors were noted in the model, only a few minor discrepancies were identified. The model was considered to be fit for the purposes of resource and reserve estimation and mine planning. ○ An internal technical evaluation group (TEG) peer review of the CQ estimate of coking coal grade (fluidity and rank), and Kestrel Mine extension (KME) Project valuation in 2007 found sufficient confidence in CQ grade estimates for the KME Project to be approved in December 2007. ○ An external audit of the methodology of for defining “eventual economic extraction” (via Whittle for opencast and advanced economic analysis of underground) was completed by Xstract Mining Consultants in 2015. This considered the process to be a robust, transparent and fit for purpose methodology. <ul style="list-style-type: none"> • These reviews validated the modelling and estimation of Resources at Kestrel to-date.
Discussion of relative accuracy/ confidence	<ul style="list-style-type: none"> • Rio Tinto Coal Australia operate multiple mines in NSW and QLD. The Mineral Resource data collection and estimation techniques used for the Kestrel deposit are consistent with those applied at other deposits which are being mined and is indicative of a robust process. • Accuracy and confidence of Mineral Resource estimation estimate has been accepted by the Competent Person.

SECTION 4 ESTIMATION AND REPORTING OF ORE RESERVES

Criteria	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul style="list-style-type: none"> • A 3D gridded resource model of topography, structure and quality is used for in situ resource definition. • Mine design blocks are applied to the in situ resource model to generate the raw reserves used to create a separate mine schedule database. The mine schedule database also reflects working sections, mining methods and associated assumptions. The mine schedule database is used for Coal Reserves reporting. • Coal Resources are in addition to Coal Reserves. Underground ore reserves are as reported in 2014, with an adjustment for mining depletion.
Site visits	<ul style="list-style-type: none"> • The Reserves Competent Person has not visited Kestrel in 2015. Due to changes in personnel, the new designated Reserves Competent Person for Kestrel Mine has not been able to travel to the mine site. This will be remedied in subsequent reserves sign-offs.
Study status	<ul style="list-style-type: none"> • Kestrel is an operating mine. The reportable Ore Reserve is based on the life of mine (LOM) plan and has determined a mine plan that is technically achievable and economically viable, and that material modifying factors have been considered.
Cut-off parameters	<ul style="list-style-type: none"> • A comprehensive margin ranking exercise was carried out in 2005 to determine the economic limits of the deposit. These limits are still valid and are tested annually as part of the LOM process. • For annual JORC reserves reporting purposes, detailed mine design and schedules are constructed to generate detailed cash flow schedules. This work includes identifying the mining sequence, equipment requirements, incremental and sustaining capital. • A discounted cashflow analysis is conducted to re-assess under the latest economic assumptions the potential reserves remain net cashflow positive.
Mining factors or assumptions	<ul style="list-style-type: none"> • Kestrel is an underground mine that targets the German Creek Seam. It utilises continuous mining units for in-seam development to gain access to the reserve and longwall retreat to extract the majority of the reserve. • Material and personnel movement in and out of the mine is by drive in access via a dedicated inclined transport drift; and coal clearance out of the mine is via a second dedicated inclined drift. • The LOM assumes 375m wide longwall panels that increase to 415m in District 400 and District 500. The length of longwall panels are determined by a combination of factors including faults, conveyor belt drive technology and ventilation requirements. • All main headings and gate-road pillars have been designed to provide the required

	<p>stability with appropriate factors of safety as have barrier pillars between the longwall panel take-offs and the main headings. The plan is optimised at 037.25°/217.2° panel alignment to maintain 90° conveyor transfer angles as well as for in situ horizontal stress for rib stability.</p> <ul style="list-style-type: none"> • The mining dilution or loss factors are used depending on the primary roof or floor. 300mm of dilution or loss is used in the development and a range from 10mm–100mm used for the longwall. • LOMs for strategic planning purposes may contain Inferred Resources, provided that the LOM plan would not be compromised by non-inclusion of this coal. Inferred Resources included in LOM plans retain this designation and are not to be referred to as Reserves. Neither are they to be reported in JORC or Securities and Exchange Commission compliant reserve statements. • Kestrel has only very limited Inferred coal within the existing LOM plan. • Site infrastructure includes coal handling and preparation plant (CHPP), co-disposal dump, rail loop, mine offices, workshop, warehouse and water/sewage treatment plants.
Metallurgical factors or assumptions	<ul style="list-style-type: none"> • The Kestrel CHPP consists of raw coal handling facilities and stockpile, coal preparation plant, product stockpile and train load-out facility and co-disposal area. • The CHPP produces both coking and thermal products. Yield for each product is estimated from laboratory tests of exploration samples and modelled. Coal qualities modelled include volatile matter, sulphur, phosphorus, crucible swelling number (CSN), fluidity, dilatation, reflectance, and thermal energy. • During the annual reconciliation process, the actual plant performance is compared to model forecast. An adjustment factor for the coke/thermal split is derived from this data to increase alignment of actual and forecast results.
Environmental	<ul style="list-style-type: none"> • Appropriate environmental authorities and licences are in place for mining operations at Kestrel. • The main impact of mining at Kestrel is subsidence of the surface as the area above the coal seam falls in mined-out area. The land management strategy centres on protecting the soil from erosion during subsidence, and working to return affected areas to productive agricultural use. • Reject material from the CHPP is disposed of in the surface co-disposal area, which will be rehabilitated prior to mine closure.
Infrastructure	<ul style="list-style-type: none"> • Kestrel is an operating site with existing infrastructure in place to support the operation. The current LOM requires sustaining capital only to maintain the existing infrastructure.
Costs	<ul style="list-style-type: none"> • Based on detailed Annual Operating Plan (AOP) process. Beyond AOP, sustaining capex based on \$/ROMt plus equipment replacements and additions required to deliver mine plan. • First principles estimating and aligned with AOP. Budget prices for major consumables and labour. • Commodity prices supplied by the economics and markets team, based on expected demand, current supply, known expansions, and expected incentivised supply. • Exchange rates supplied by the economics and markets team. • Transport charges obtained from coal chain team based on existing contracts and expected tonnages. • State Government royalties are based on current QLD royalty rates.
Revenue factors	<ul style="list-style-type: none"> • Rio Tinto applies a common process to the generation of commodity price estimates across the group. This involves generation of long-term price curves based on current sales contracts, industry capacity analysis, global commodity consumption, and economic growth trends. In this process, a price curve rather than a single price point is used to develop estimates of mine returns over the life of the project. The detail of this process and of the price point curves is commercially sensitive and is not disclosed.
Market assessment	<ul style="list-style-type: none"> • The supply and demand situation for coal is affected by a wide range of factors, and coal consumption changes with economic development and circumstances. Rio Tinto Coal Australia delivers products aligned with its Mineral Resources and Ore Reserves, these products have changed over time and successfully competed with coal products supplied by other companies. Price and volume forecasts are the basis for these forecasts.

Economic	<ul style="list-style-type: none"> Economic inputs such as foreign exchange rates, carbon pricing, and inflation rates are also generated internally at Rio Tinto. The detail of this process is commercially sensitive and is not disclosed.
Social	<ul style="list-style-type: none"> Kestrel is committed to making a sustained contribution to the social and economic wellbeing of Queensland's Central Highlands Region beyond providing over 350 direct jobs at the mine site. The Kestrel Mine Community Development Fund has supported many local projects since its launch in 2003. The fund works with community partners on projects addressing economic development, creation of employment and training opportunities and enhancement of industry. Local suppliers and service people are given opportunities to tender for projects related to Kestrel.
Other	<ul style="list-style-type: none"> Semi-quantitative risk assessments have been undertaken throughout the LOM and Reserve phases. No material naturally occurring risks have been identified through the above mentioned risk management processes.
Classification	<ul style="list-style-type: none"> The Ore Reserves consist of 28.8% Proved Reserves and 71.1% Probable Reserves. The competent Person is satisfied that the stated Ore Reserve classification reflects the outcome of technical and economic studies.
Audits or reviews	<ul style="list-style-type: none"> No external audits have been performed. Internal Rio Tinto Coal Australia peer review processes have been completed. These reviews concluded that the fundamental data collection techniques are appropriate and consistent with previously audited Kestrel models.
Discussion of relative accuracy/ confidence	<ul style="list-style-type: none"> Rio Tinto Coal Australia operates multiple mines in QLD and NSW. The Ore Reserve estimation techniques utilised for the Kestrel Mine are consistent with those applied across the other operations. Reconciliation of actual production with the Ore Reserve estimate for the existing operations is generally within 5% for tonnage and grade. This result is indicative of a robust Ore Reserve estimation process. Accuracy and confidence of modifying factors are generally consistent with the current operation.