

ASHFORD PROJECT – JORC RESOURCE

Table 1 - Checklist of Assessment and Reporting Criteria (The JORC Code, 2012 Edition)

The following table provides a summary of important assessment and reporting criteria used for the Gunnedah 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	Explanation
Sampling Techniques	Coal quality sampling and analytical testing has been undertaken on HQ (61mm) wireline and 100mm size conventional cores at Arthurs Seat, Brunt N/S and Brunt Pod. The coal seams are typically sampled in their entirety, from roof to floor and commonly sub-sampled into plies. All intraseam stone bands are included in the samples, with the exception of larger, potentially removable stone partings in the Ashford seam at the Brunt Pod. Intercept lengths and linear recovery are confirmed by geophysical wireline logging.
Drilling techniques	and percussion) with geophysical logging used to interpret coal seam depths and thicknesses. Partially cored holes are typically targeted adjacent to an existing open hole and core the coal seam intervals. Cored holes have been predominantly HQ Triple Tube core (61mm diameter) and 4C core (100mm diameter).
Drill sample recovery	Linear core recoveries are estimated with reference to wireline logs and results of seam samples with less than 80% recovery were excluded from the model. Volumetric recoveries estimated by the analysis laboratory are also used to assess core recoveries. Rotary / chip samples were not used to assess coal quality. 4C and HQ TT wireline coring is used to maximise sample recovery. There is no known relationship between coal quality and sample recovery.
Logging	Core and chip samples were logged by geologists experienced in coal resource investigation and evaluation. The standard and level of detail is considered appropriate for mineral resource estimation. All holes were geophysically logged unless barren or blocked. The minimum suite of logs is natural gamma, long and short spaced density, and calliper. All core samples are photographed (digitally, since 2006) and kept on record. Total aggregate length of cored holes in the geological model is 1,600m, in 25 drillholes. Total aggregate length of non-cored holes is 21,200m, in 260 drillholes.
Sub-sampling techniques and preparation	Full cores were used for coal quality testing. Chip samples were not used to assess coal quality. HQ & 4C coring used to ensure sample is representative, and that sufficient material is available for sub-samples. Sample preparation, sub-sampling and quality control procedures ensured by using NATA accredited commercial labs employing recognised QA procedures and following Australian Standards for coal testing. HQ & 4C coring used to ensure that sufficient mass and particle numbers are available for representative sub-samples. Linear core recoveries are recorded and results of seam samples with less than 80% recovery were excluded from the model.
Quality of assay data and laboratory tests	Sample preparation, sub-sampling and quality control procedures ensured by using commercial labs employing recognised QA procedures and following Australian Standards for coal testing. Samples were split and reserves retained where sufficient mass remained after testing. Coal quality was not estimated from geophysical measurements. Standards, blanks, duplicates, external laboratory checks have not been used by WHC. Acceptable levels of accuracy and precision are maintained by using commercial labs that are regularly benchmarked by external auditors against ISO 17025. These labs employ regular internal and



	external blind proficiency programs to provide a demonstration that results are controlled (may not have occurred for historic testing).
Verification of sampling and assaying	Coal intersections used in the geological model were verified by geophysical measurements obtained by wireline logging, carried out by an independent contractor, and more recently by digital photographs. Coal intersection depths and seam correlations have been validated by independent reviewers/auditors and/or alternative company personnel. Twinned holes are not used. Data acquisition and verification protocols as per Whitehaven Coal procedures. Drillhole collar, lithology and basic raw coal quality data is stored in a Logcheck database and exported to a Ventyx Minescape drillhole file. Source field records, lab reports, core photographs, survey data etc are stored in electronic form on the Whitehaven Coal network, and hard copy in borehole folders at the company's Gunnedah office. The moisture basis of coal quality data may have been adjusted. Values stored in the GDB database are on an air dried basis.
Location of data points	Borehole collars were surveyed by a Registered Surveyor, using triangulation or dGPS RTK methods. A few holes, mostly without seam intersections, have co-ordinates derived from handheld GPS. Surveyor's Reports are not available for some boreholes, however every effort was made to verify borehole locations from old reports etc. The grid system used is the Map Grid of Australia 1994 (MGA94) based on the Geocentric Datum of Australia 1994 (GDA94) values. Older survey data was converted from ISG coordinates. Topographic control is provided by NSW Department of Lands.
Data spacing and distribution	Many boreholes intersect only part of the sequence ie were spudded stratigraphically below one or more seams, or were not drilled deep enough to intersect lower seams. Borehole spacing therefore needs to be considered on a seam-by-seam basis. Cored holes (coal quality data points) are spaced at 30 to 1000m. The data spacing and distribution is considered by the Competent Person to be sufficient to establish the degree of geological and grade continuity appropriate for the coal deposit. Where coal intersections have been sampled in multiple sections per seam, compositing of samples, on a length x RD basis has been applied.
Orientation of data in relation to geological structure	Industry standard vertical drilling has been used to sample stratiform coal seams. The orientation of data in relation to geological structure is not believed to have introduced any sampling bias.
Sample security	Core samples were either delivered to the lab by the field geologist or collected by lab personnel.
Audits or reviews	An entirely new drillhole database (LogCheck) was created and validated by independent contractors and WHC geological personnel in February 2014. Boreholes drilled since were audited by the Competent Person, and Mr Brad Willis.

Section 2	Reporting of Exploration Results
Criteria	Explanation
Mineral tenement and land tenure status	EL6450 (Brunt) was last renewed in 2011 for a period of three years. A renewal report was lodged and accepted. The tenement is pending renewal. EL6587 (Arthurs Seat) was renewed in 2012 for a period of three years and is still current. Freehold land is owned by individuals or pastoral



	companies. The Severn State Forest is located 3km to the northwest of the Brunt deposits. A native title land claim by the Gomeroi people is in force over much of the region. This claim affects Travelling Stock Routes and unused Crown Land.
Exploration done by other parties	White Mining undertook drill programs at the Brunt and Arthurs Seat deposits between 1976 and 1979.
Geology	Permian bituminous coal deposit hosting four named coal seams. Dips at Brunt North and Brunt South are to the west at between 20 and 40 degrees. The Brunt Pod is a thrust-repeated accumulation of coal with a thickness up to 60m. Dips at Arthurs Seat are towards the northeast at 10 to 20 degrees. Washed coal products are soft to semi-hard coking coal.
Drill hole information	There are 445 drillholes in the Ashford drillhole database. Of which, there are 285 drillholes used in the geological models. Notwithstanding the inclusion of these data, the CP does not believe that exclusion would detract from the understanding of the coal resources given the level of information provided.
Data aggregation methods	Coal intersections have been sampled in multiple sections per seam, so compositing of samples, on a length x RD basis, has been applied.
Relationship between mineralisation widths and intercept depths	All drillholes were (nominally) vertical. Coal thicknesses quoted are for downhole intercept lengths, which are exaggerated by seam dips. Coal resource modelling and estimation takes this effect into account.
Diagrams	Maps are included at the end of this table.
Balanced reporting	There is no preferential reporting of results.
Other substantive exploration data	Ground magnetic studies have been completed at the Brunt Pod and reported elsewhere.
Further Work	Additional open and cored holes will be required to increase confidence in grade continuity for most areas. Seismic surveys may be required to confirm coal seam continuity down dip at the Brunt North and Brunt South deposits. Additional loxline drilling is required in most areas.

Section 3	Estimation and Reporting of Mineral Resources
Criteria	Explanation
Database integrity	Borehole collar locations and RL's were checked against surveyors' reports, field records (handheld GPS) and the DTM. Lithological logs and coal intersection depths were reconciled with wireline logs. Coal quality data were cross-checked against lab reports and sample depths were correlated with the lithological database. Acquisition, validation and entry of data is per WHC Procedures (refer to Section 1 above). All survey, lithological and quality data are compiled in a LogCheck database.
Site visits	The Competent Person's most recent visit was on 24 June 2014 and was accompanied by Mr Momtaz Eissa.
Geological interpretation	The geological interpretation is based on surface mapping of outcrop and borehole data. The drillhole database is extensive and an alternative interpretation is and was possible using other geological modelling software (Block Model). The main factor affecting coal seam continuity is the interplay of seam dip, depth of weathering, faulting/thrusting, seam splitting and surface topography which determines seam subcrop. Seam specific influences include the rapid splitting, deterioration and coalescence of coal



	plies within the Ashford seam. The Bonshaw seam is reasonably consistent throughout the Arthurs Seat deposit.
Dimensions	The Brunt deposits strike over a distance of nearly 3 kilometres and extend down dip to a depth of 100 (Brunt North, Brunt South) to 150m (Brunt Pod) and is open at depth. The Brunt pod is triangle shaped in plan-view with dimensions 350x250m. The Arthurs Seat deposit is approximately 500x500m in area with a maximum depth of 120m and remains open to the north at depth.
Estimation and modelling techniques	The geological model was developed by the Mr Lynden Pass (Encompass Mining), using Ventyx Minescape software, and audited by the Author. The current estimate supersedes a previous reports. There is a history of resource reports for Arthurs Seat and Brunt Pod deposits dating back to 2007. There are no known deleterious elements of economic significance. For Arthurs Seat, Brunt North and Brunt South there is no assumption of selective mining. Ply thickness roof to floor is modelled for all seams. The Brunt Pod deposit is a parting model where stone partings thick enough to be mined separately are not considered resource. The deposits are sufficiently characterised by drilling to allow the chosen modelling parameters to operate freely without interpreted geological controls such as dummy boreholes or extrapolated survey data. The resource model is cut by the base of weathering grid. Acquisition, validation and entry of data is per WHC Procedures (refer to Section 1 above). The geological model is validated by generating and inspecting reports, tables, cross sections, contour plans and comparisons with posted drillhole values.
Moisture	The basis of the tonnage estimate is air dried moisture (Mad). The in situ moisture (Mis) has not been estimated to date.
Cut-off parameters	Coal tenement boundaries. Subcrop against base of weathering. Minimum coal/ply thickness for open cut coal is 0.2m. Maximum depth of resource (Brunt Pod – 150m; Brunt North/Brunt South – 100m, and; Arthurs Seat – 120m)
Mining factors or assumptions	It is expected that the resource will be mined by open cut (truck and shovel) methods. Open cut mining studies completed were of a conceptual nature only. All coal will require beneficiation to meet coking coal specifications.
Metallurgical factors or assumptions	Washed coal testing has been undertaken on borecore and are not modelled for this report. Yields will vary with changes in raw coal ash, however the washed coal results show that the beneficiated coal can be marketed as soft to semi-hard coking coal with moderate yields.
Environmental factors or	There are no significant environmental factors in the Brunt or Arthurs Seat areas
Bulk density	A relative density of 1.45 was used for all coal modelled in this report. This relative density was determined by a linear regression of ash vs RD plots.
Classification	Most of the resources estimated in this report are in the Inferred category, largely due to the uncertainty involved with complex structure and seam splitting and quantity / distribution of coal quality boreholes. The result reflects the Competent Person's view of the deposits.
Audits or reviews	Mr Brad Willis has reviewed the resource estimate.
Discussion of relative accuracy/confidence	An informed but qualitative judgement of the accuracy of the global resource estimate, is that it is generally within +/-30% confidence limits.









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