

### **SIGNIFICANT INCREASE TO HUNTER VALLEY COAL RESERVES AND RESOURCES**

**28 November 2014**

Rio Tinto Coal Australia has declared a significant increase of its managed thermal coal reserves and resources in the Hunter Valley of New South Wales, Australia, compared to the previous estimates reported in Rio Tinto's 2013 Annual Report.

The update under the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 (JORC Code) is set out in the following Tables 1 and 2 and in Figure 1.

Ore Reserves increase by 546 million tonnes (Mt), from 1331 Mt to 1877 Mt.

Total Mineral Resources exclusive of Ore Reserves increase by 369 Mt, from 2349 Mt to 2718 Mt.

Rio Tinto Coal Australia managing director Chris Salisbury said "The coal assets managed by Coal & Allied in the Hunter Valley are truly world class and offer a large, contiguous footprint within the most attractive sections of the coal district.

"An extensive drilling program over many decades means we have high confidence in our increased understanding of our coal assets and their quality, which is characterised by shallow, thick seams with little geological faulting.

"This discovery of greater coal reserves and resources is the result of more than a year's work and forms part of our wider efforts to deliver greater value to our shareholders. We continue to examine our asset base for further opportunities.

"Our extensive reserve and resource base, further amplified by this latest announcement, provides many options to sustain and grow our business in the Hunter Valley for many decades to come."

The update is based on a rigorous examination of all of the Hunter Valley leases that involved:

- Analysing a vast legacy dataset gathered over decades from approximately 13,000 drill holes
- Transforming the strategic mine planning processes and tools used to estimate reserves
- Adopting more efficient resource estimation methods

**Table 1 – Ore Reserves**

							Marketable Reserves		Marketable coal quality				Rio Tinto share
Type of mine (a)	Coal type (b)	Proved	Reserves Probable	Proved	Marketable Reserves Probable	Total 2014	Total 2013	(c)	(c)	Avg % yield to give marketable Reserves	Interest %	Marketable Reserves	
		at 31 October 2014		at 31 October 2014									
COAL													
Reserves at operating mines													
Rio Tinto Coal Australia													
Bengalla	O/C	SC	165	106	133	86	218	120	27.40	0.50	81	32.0	70
Hunter Valley Operations	O/C	SC + MC	404	202	283	138	421	277	29.26	0.56	69	80.0	337
Mount Thorley Operations (e)	O/C	SC + MC	20	7	13	5	18	21	29.80	0.45	67	64.0	12
Warkworth (e)	O/C	SC + MC	193	155	126	101	227	233	29.80	0.45	65	44.5	101
Total reserves at operating mines													
Other undeveloped Reserves (f)													
Rio Tinto Coal Australia													
Mount Pleasant	O/C	SC	0	625	0	474	474	326	27.24	0.50	76	80.0	379

**Notes**

(a) Type of mine: O/C = open cut, U/G = underground

(b) Coal type: SC: steam/thermal coal, MC: metallurgical/coking coal.

(c) Coals have been analysed on an "Air Dried" moisture basis in accordance with Australian Standards and gross calorific value and sulphur content are reported here on that basis. Marketable reserve tonnages are reported on a product moisture basis.

(d) For coal, the yield factors shown reflect the impact of further processing, where necessary, to provide marketable coal.

(e) Hunter Valley Operations, Bengalla Mine and Mt Pleasant Project reserves increased following technical and economic studies. Mount Thorley Operations and Warkworth are stated on basis of 2013 Reserves less depletions.

(f) The term "other undeveloped reserves" is used here to describe material that is economically viable on the basis of technical and economic studies but for which mining and processing permits may have yet to be requested or obtained. There is a reasonable, but not absolute, certainty that the necessary permits will be issued and that mining can proceed when required.

**Table 2 – Mineral Resources**

As required by the Australian Securities Exchange, the following tables contain details of other mineralisation that has a reasonable prospect of being economically extracted in the future but which is not yet classified as Proved or Probable Ore Reserves. This material is defined as Mineral Resources under the JORC Code. Estimates of such material are based largely on geological information with only preliminary consideration of mining, economic and other factors. While in the judgment of the Competent Person there are realistic expectations that all or part of the Mineral Resources will eventually become Proved or Probable Ore Reserves, there is no guarantee that this will occur as the result depends on further technical and economic studies and prevailing economic conditions in the future. As in the case of Ore Reserves, managed operations' estimates are completed using or testing against Rio Tinto long-term pricing and market forecasts/scenarios. Mineral Resources are stated as additional to the Ore Reserves reported earlier. Where operations are not managed by Rio Tinto the Mineral Resources are published as received from the managing company. Where new project Mineral Resources or Ore Reserves are footnoted as being reported for the first time, additional information about them can be viewed on the Rio Tinto website.

	Likely mining method (a)	Coal type (b)	Coal Resources at 31st October 2014			Total Resources 2014 compared with 2013		Rio Tinto Interest %
			Measured	Indicated	Inferred	2014	2013	
			millions of tonnes	millions of tonnes	millions of tonnes	millions of tonnes	millions of tonnes	
<b>COAL (c)</b>								
<b>Rio Tinto Coal Australia</b>								
Bengalla	O/C + U/G	SC + MC	57	49	81	<b>187</b>	246	32.0
Hunter Valley Operations	O/C + U/G	SC + MC	269	379	725	<b>1373</b>	904	80.0
Mount Pleasant	O/C	SC + MC	97	217	257	<b>571</b>	612	80.0
Mount Thorley Operations	O/C + U/G	SC + MC		19	94	<b>113</b>	113	64.0
Warkworth	O/C + U/G	SC + MC	6.2	125	343	<b>475</b>	475	44.5

**Notes**

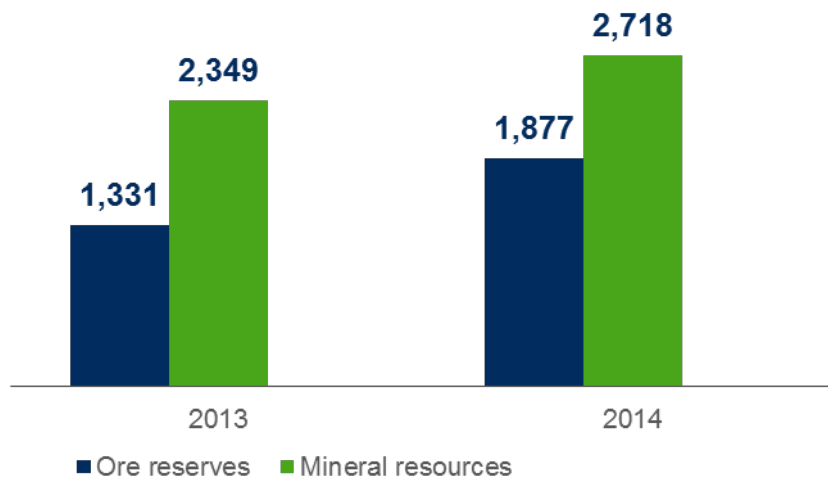
(a) Likely mining method: O/C = open cut; U/G = underground

(b) Coal type: SC=steam/thermal coal, MC=metallurgical/coking coal.

(c) Rio Tinto reports coal Resources on an in situ moisture basis.

(d) Hunter Valley Operations resources increased following technical and economic studies. Bengalla Mine and Mt Pleasant Project resources decreased following conversion of Resources to Reserves. Mount Thorley Operations and Warkworth are stated on basis of 2013 resources.

**Figure 1 – Coal & Allied Ore Reserve and Mineral Resource upgrade (Million tonnes)**



The references in the above chart to the 2013 estimates of Rio Tinto's Mineral Resources and Ore Reserves are an aggregation of estimates as at 31 December 2013 that were previously reported in accordance with the JORC Code on pages 215 and 219 of the Rio Tinto 2013 Annual Report dated 5 March 2014 and released to ASX on 14 March 2014. Mineral Resource and Ore Reserves are reported on a 100% basis. Mineral Resources are reported exclusive of Ore Reserves. Ore Reserves are reported on a ROM basis while Mineral Resources are reported on an in situ basis

## Summary of Information to Support Mineral Resource Estimates

Mineral Resource Estimate upgrades for Hunter Valley Operations, Bengalla Mine and Mount Pleasant Project are supported by JORC Table 1 (Section 1 to 3) documents provided in Appendix 1 to 3 of this media release and also located at [www.riotinto.com/JORC](http://www.riotinto.com/JORC). The following summary of information for Mineral Resource Estimates is provided in accordance with Chapter 5.8 of ASX Listing Rules.

### Geology and geological interpretation

Coal & Allied coal deposits are located in the Hunter Coalfield in the northern part of the Permian-age Sydney Basin, New South Wales. The coal deposits occur within the Late Permian Wittingham Coal Measures, which are further subdivided into the Vane and Jerrys Plains Subgroups. The main rock types present in both subgroups include sandstone, siltstone and conglomerate, with subordinate coal and tuffaceous claystone. Coal quality and geological structure, including coal seam continuity, faulting, limits of oxidation, sub-crops and igneous intrusions are well defined in all deposits. Geologic interpretations are supported by surface mapping of outcrops and mining exposures and by a comprehensive database containing structural, coal quality and geotechnical data for more than 12,900 exploration, evaluation and pre-production drill holes.

### Drilling techniques

Coal & Allied coal deposits in all leases have been extensively drilled using a combination of open hole and HQ3 wireline coring techniques. Open holes comprise approximately 60% to 80% of all drilling completed in leases with this method primarily employed for the purpose of coal and waste structure definition. HQ3 core drilling is primarily employed for the purpose of coal quality (CQ), geotechnical and gas sampling. A limited number of 150mm to 200mm large diameter holes have been drilled to obtain bulk volume samples for coal sizing and handling characterisation studies. This technique comprises approximately 2% of total drilled metres.

Geophysical logging was completed for all drill holes employing a comprehensive suite of down hole tools to collect calliper, gamma, density, neutron and sonic measurements. Acoustic scanner measurements were also routinely completed for cored holes to obtain additional data for geotechnical assessments.

### Sampling, sub-sampling method and sample analysis method

Total coal core recovery in drill core was above 95% for all holes. Sampling of drill core at all Coal & Allied sites was according to a universal standard set of instructions. Samples were bagged at the drill site and then transported to an external accredited laboratory for analysis. All samples were weighed, air-dried and then re-weighed before being crushed to an 11.2mm top size. A rotary splitter was used to divide the sample into portions available for further analysis.

Coal quality analysis was by a three-stage method comprising raw analysis for all plies followed by washability and product testing on composite samples. All sample treatment and analysis was conducted according to procedures which adhere to Australian or International equivalent standards in National Association of Testing Authorities certified laboratories.

## Criteria used for classification

The classification of Mineral Resources into confidence categories was based on a standard process for all Coal & Allied sites. Drill holes were assessed according to the value and reliability of contained data to contribute a point of observation to Mineral Resource classifications. Structure and coal quality confidence limits were plotted on a seam group basis with classification of coal inventory into areas of low, medium or high confidence. These were combined to delineate areas of Measured, Indicated and Inferred coal inventory as a basis for determining Mineral Resource tonnage estimates.

A range of drill hole spacing limits were defined to reflect the inherent variability of the nineteen seam groups modelled within the deposits. Typical distances for structure confidence classification are 300m to 500m for high, 600m to 1,000m for medium and 2,100m to 4,000m for low. Typical distances for coal quality confidence classification are 400m to 1,000m for high, 800m to 2,000m for medium and 2,400m to 7,200m for low.

## Estimation methodology

Modelling was completed using standard coal resource modelling software. For structural modelling a proprietary fine element method (FEM) interpolator was used and for coal quality an inverse distance squared interpolator was used. All surfaces and coal qualities were interpolated into grids with 20 m<sup>2</sup> to 50 m<sup>2</sup> node spacing depending on deposit. Modelling was completed on an iterative basis by checking cross sections and contours of structural and coal quality attributes. Database values were posted on contours to provide a further check. A volume / tonnage check was completed with predecessor models to provide final validation.

## Reasonable prospects for eventual economic extraction

A minimum coal thickness of 0.25m and density of 1.8 g/m<sup>3</sup> were applied as cut-off parameters for reporting Mineral Resources. Economic resources were defined by a “break even” (\$0 margin) Lerchs-Grossman optimised shell for opencast coal – this effectively sets the maximum depth or lowermost seam to be considered. For underground resources (outside of those defined as opencast) the limits were based on either an order of magnitude study or standard set of rules (i.e. coal below “break even” shell, less than 600m deep and greater than 1.8m thick).

## Summary of Information to Support Ore Reserve Estimates

Ore Reserve Estimate upgrades for Hunter Valley Operations, Bengalla Mine and Mount Pleasant Project are supported by JORC Table 1 (Section 4) documents provided in Appendix 1 to 3 of this media release and located at [www.riotinto.com/JORC](http://www.riotinto.com/JORC). The following summary of information for Ore Reserve Estimates is provided in accordance with Chapter 5.9 of ASX Listing Rules.

### Economic assumptions

Rio Tinto applies a common process to the generation of commodity prices 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.

### Criteria used for classification

The stated Proved and Probable Ore Reserves directly coincide with the Measured and Indicated Mineral Resources, respectively. There are no Inferred or Unclassified resources included in the stated reserve numbers.

### Mining and recovery factors

Mine design strips and blocks were applied to the in situ coal resource model to generate the raw Reserves used to create a separate mine schedule database. The mine schedule database also reflects working sections or seam aggregations, mining methods and associated loss and dilution impacts. The mine schedule database was used as the basis for Ore Reserves reporting.

Hunter Valley Operations and Bengalla Mine utilise draglines, and truck and shovels for waste movement, while coal is loaded using a combination of loaders and excavators with haulage to the ROM hoppers undertaken using rear dump trucks. The operations are supported by additional equipment including dozers, graders, and water carts.

The Mt Pleasant project proposes to utilise dragline, as well as truck and shovel, for waste movement while coal is to be loaded using a combination of loaders and excavators. Haulage to the run of mine (ROM) hopper would be done using rear dump trucks. The operations are proposed to be supported by additional equipment including dozers, graders and water cart

All pit end-walls have benched and battered designs based on typical Rio Tinto Coal Australia practice with allowances made for increasing depth of mining. The design provides for mining roadways and catch benches.

## Cut-off grades

Working section or seam aggregation logic pre-determines what is defined as mineable coal by applying working section tests based on minimum coal thickness (typically 30cm), and a maximum raw ash content typically 50% to 55% on an air-dried basis.

Coal loss and dilution factors were also applied and vary by the equipment type uncovering the various coal seams (i.e. excavator/truck versus dragline). Typical roof and floor coal loss thickness ranges from 2cm to 25cm. Typical roof and floor waste dilution thickness ranges from 2cm to 7cm.

## Processing

The processes used across the operating mines and projects are standard for the coal industry and so are well tested technologies. All samples were wash/cut-point tested and so the representativeness of test work undertaken is implicit in the Resource classification status.

In-seam dilution was included in sample testing.

Ore Reserve estimation was based on existing product specifications.

## Modifying factors

Hunter Valley Operations, Bengalla Mine and Mt Pleasant Project all have current development consents that allow for coal mining and processing operations on site. These consents have a maximum duration of 21 years from the time of issue, after which renewal is required. Coal & Allied employs a dedicated Tenements Manager to ensure timely applications for lease renewal. All necessary Government approvals are expected to be received within the timeframes anticipated in the respective life of mine (LOM) plans.

Hunter Valley Operations and Bengalla Mine are operating sites with existing infrastructure in place to support the operations. The current LOM plans require sustaining capital only to maintain the existing infrastructure.

The infrastructure requirements for Mt Pleasant Project were assessed in detail by a Feasibility Study. The site is located in close proximity to the town of Muswellbrook and is immediately adjacent to the operating Bengalla Mine. The availability of land for plant development, power, water, transportation, labour, and accommodation has also been assessed by the Feasibility Study.



## Competent Persons Statement

The information in this report that relates to Mineral Resources is based on information compiled by Dr Richard Ruddock, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Dr Ruddock is a full-time employee of the company.

The information in this report that relates to Ore Reserves is based on information compiled by Mr Andrew Prentice (Bengalla & Mount Pleasant) and Mr Greg Doyle (Hunter Valley Operations and Mount Thorley Warkworth Operations). Both Mr Prentice and Mr Doyle are Competent Persons who are Members of The Australasian Institute of Mining and Metallurgy. Mr Prentice and Mr Doyle are full-time employees of the company.

Dr Ruddock, Mr Prentice and Mr Doyle have sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Dr Ruddock, Mr Prentice and Mr Doyle consent to the inclusion in the report of the matters based on the information in the form and context in which it appears.'

Mount Thorley and Warkworth Mineral Resources and Ore Reserves are unchanged since the last market announcement except for depletion by production. The information is extracted from pages 219 and 215 of Rio Tinto's 2013 Annual Report dated 5 March 2014 and announced to market on the 14 March 2014, and is available to view on <http://www.riotinto.com/investors/results-and-reports-2146.aspx>. To the extent that information relating to Mount Thorley and Warkworth in the 2013 Annual Report related to Mineral Resources it is based on information compiled by Dr Richard Ruddock (referred to above), and to the extent that it related to Ore Reserves it is based on information compiled by Mr Greg Doyle (also referred to above). The company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement in relation to Mount Thorley and Warkworth and, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented in relation to Mount Thorley and Warkworth have not been materially modified from the original market announcement.

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## Appendix 1 - Hunter Valley Operations Table 1

The following table provides a summary of important assessment and reporting criteria used at Hunter Valley Operations (HVO) for the reporting of exploration results and Mineral Resources 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"> <li>A combination of open hole (predominantly for structural definition) and cored (for coal quality (CQ), geotechnical and gas sampling) have been used.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>A total of 7,437 drill holes (508,447m) support the Resource estimate. Cored drilling represents 37% of the total metres and open hole drilling 63%. The drill holes are up to 616m in length and average 67m. The drill holes were all nominally recorded as vertical - boreholes which deviated by more than 4% from vertical of the total drill holes length the drill hole were redrilled.</li> <li>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: 103 holes at 101mm (4") and six holes at 200mm (8") diameter sizes.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>Standardised Rio Tinto Coal Australia logging systems are utilised for all drilling, logging, and sampling.</li> <li>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.</li> <li>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.</li> <li>Open hole chip recovery is assessed qualitatively by the rig geologist.</li> </ul>
Logging	<ul style="list-style-type: none"> <li>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.</li> <li>All core is photographed on the core table (0.5m increment) and in 4m (HQ) or 5m (N/PQ) trays. Chip samples are photographed in 1m intervals.</li> <li>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.</li> </ul>

Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>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.</li> <li>All samples are weighed, air-dried and then re-weighed before being crushed to an 11.2mm top size. A rotary splitter is used to divide the sample into portions available for further CQ analysis.</li> <li>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 geologist.</li> <li>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.</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>Non-formalised quality assurance/quality control (QAQC) involving duplicate samples is completed and, 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.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>All CQ sampling and analysis is overseen and checked by Rio Tinto personnel.</li> <li>Data transfer from site is covered by an agreed protocol. This system documents primary data, data entry procedures, data verification, data storage (physical and electronic) into a geological database.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>The topographic surface is derived from a combination of Lands and Property Management Authority 10m contours which originated from the early 1980s, and recent (September 2008) 2m contours derived from an airborne LiDAR survey. Drill hole collars and mine survey data were also used. The digital terrain model was created with a 50m x 50m cell size triangulation at 0.2m decimation.</li> <li>All surveyed coordinates are within Map Grid of Australia 1994 MGA (MGA94) Zone 56 projection using datum GDA94.</li> <li>Drill hole collars were surveyed post drilling by licensed surveyors using differential global positioning system with an accuracy of <math>\pm 10</math>mm.</li> <li>Downhole surveying has been undertaken using downhole verticality and calliper tools since 2007, including attempted resurvey of earlier drill holes. Overall 84% of the diamond drilling metres have been surveyed downhole over the entire drill hole length but only 40% of the total open hole drilling metres have been downhole surveyed.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>Drill hole spacing for core holes is on an equilateral triangle grid of 500m or less. For open holes spacing is on a 250m or less equilateral triangle grid.</li> <li>All core samples are composited within defined seam boundaries.</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>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.</li> </ul>

Sample security	<ul style="list-style-type: none"> <li>Core/chip samples are taken at the drill site and then transported daily to the locked HVO core shed for storage. Once the hole has been completed the samples are transported to the laboratory via a dedicated courier service.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>HVO has had one audit completed in the past five years. The audit was conducted in September 2011 by the Quantitative Group Pty Ltd (report: <i>Rio Tinto Corporate Assurance Resources and Reserves Internal Audit Report. Hunter Valley Operations. 2. 1</i>).</li> <li>The review concluded that the fundamental data collection techniques are appropriate.</li> </ul>

## SECTION 2 REPORTING OF EXPLORATION RESULTS

Criteria	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> <li>Tenements are 100% owned by Coal and Allied Industries Limited, which is in turn a 100% owned subsidiary of Rio Tinto Coal Australia.</li> <li>HVO contains numerous leases and licences (see, Figure 1, note schematic only): <ul style="list-style-type: none"> <li>2 x authorisations covering 533ha</li> <li>3 x consolidated coal leases covering 1782.5ha</li> <li>5 x coal leases covering 247ha</li> <li>1 x coal mining lease covering 2162ha</li> <li>6 x exploration leases covering 5849ha</li> <li>14 x mining leases covering 6924.47ha</li> <li>5 x mining lease applications covering 251.96ha</li> <li>1 x assessment lease application covering 430ha</li> </ul> </li> <li>All leases containing Resources are in good standing.</li> </ul>



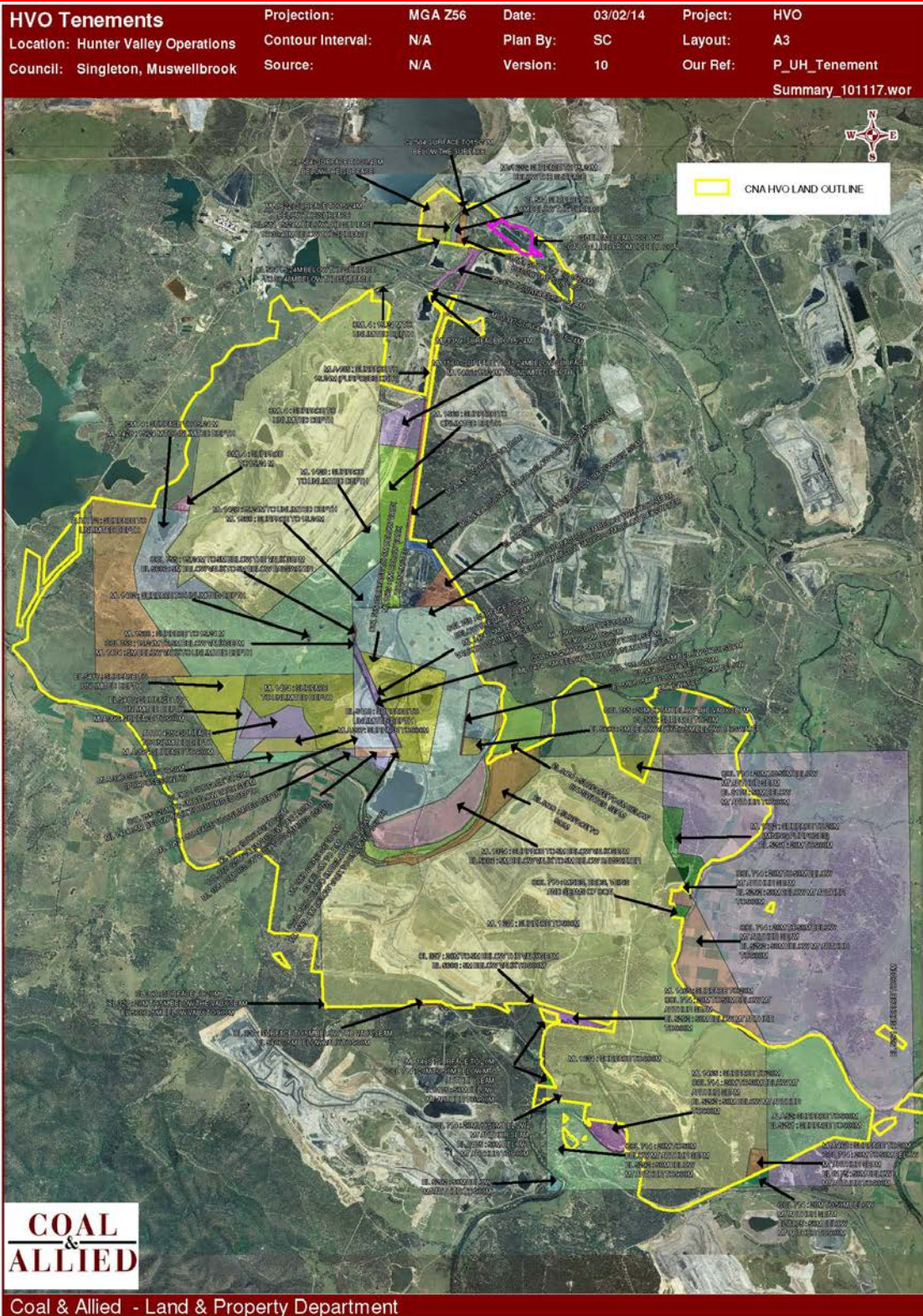


Figure 1 HVO mining and exploration titles

Exploration done by other parties	<ul style="list-style-type: none"><li>HVO is an amalgamation of several previously independent mines: Howick, Hunter Valley, and Lemington. Each mine was developed at different times resulting in variable exploration summarised as follows:<ul style="list-style-type: none"><li>Howick open-cut (west pit) – exploration initiated in the 1940s and 1950s undertaken by the Joint Coal Board and the Bureau of Mineral Resources. Drilling to 200m–300m spacing for cored holes and 50m–150m spacing for open holes.</li><li>Hunter Valley No.1 &amp; 2 mines – exploration initiated in the 1960s and early 1970s by the New South Wales (NSW) Department of Mines. Drilling to 212m spacing for cored holes and 100m spacing for open holes.</li><li>Lemington South open-cut and underground mines – exploration initiated in the 1970s by the Joint Coal Board. Drilling to 200m– 800m spacing for cored holes.</li></ul></li></ul>																																																																																																																																																																																																							
Geology	<ul style="list-style-type: none"><li>HVO is located in the Hunter Coalfield in the northern part of the Sydney Basin which contains numerous important coal producing intervals in the Permian stratigraphy. The Late Permian Wittingham Coal Measures are further sub-divided into the Vane sub-group (West and Mitchell Pits to the north of HVO) and the Jerrys Plains sub-group (Carrington, Cheshunt and Riverview Pits to the central and south parts of HVO). These sub-groups host the main coal deposits mined at HVO. The main rock types of these sub-groups are sandstone, siltstone and conglomerate, which occur with subordinate coal and tuffaceous claystone.</li></ul>																																																																																																																																																																																																							
Drill hole information	<ul style="list-style-type: none"><li>Drilling data summary since consolidation of the mines into one operation (as HVO):</li></ul> <table><tr><th></th><th>Area/year</th><th>2002</th><th>2003</th><th>2004</th><th>2005</th><th>2006</th><th>2007</th><th>2008</th><th>2009</th><th>2010</th><th>2011</th><th>2012</th><th>2013</th><th>2014</th></tr><tr><td rowspan="6">Open Holes</td><td>Carrington</td><td>43</td><td>20</td><td>31</td><td></td><td></td><td></td><td></td><td></td><td></td><td>11</td><td>102</td><td></td><td></td></tr><tr><td>Cheshunt</td><td>23</td><td>7</td><td>2</td><td>6</td><td>16</td><td>43</td><td></td><td>3</td><td>19</td><td>51</td><td></td><td>2</td><td>15</td></tr><tr><td>West</td><td>37</td><td></td><td></td><td>25</td><td></td><td>9</td><td>134</td><td>38</td><td></td><td></td><td>6</td><td>5</td><td>4</td></tr><tr><td>Mitchell</td><td>13</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>43</td><td></td><td></td></tr><tr><td>Riverview</td><td>84</td><td></td><td></td><td>8</td><td></td><td>29</td><td></td><td>26</td><td>14</td><td>47</td><td></td><td>24</td><td>33</td></tr><tr><td>Southern</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>12</td><td>25</td><td></td><td></td></tr><tr><td rowspan="7">Cored Holes</td><td>Carrington</td><td></td><td>1</td><td>7</td><td></td><td></td><td></td><td>17</td><td>4</td><td></td><td>5</td><td>40</td><td></td><td></td></tr><tr><td>Cheshunt</td><td>10</td><td>1</td><td></td><td>5</td><td>5</td><td>8</td><td></td><td>4</td><td>8</td><td>8</td><td>4</td><td></td><td>2</td></tr><tr><td>West</td><td>4</td><td>7</td><td></td><td>8</td><td></td><td>3</td><td>7</td><td>4</td><td>4</td><td>3</td><td>9</td><td></td><td>2</td></tr><tr><td>Mitchell</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>5</td><td>1</td><td></td><td></td></tr><tr><td>Riverview</td><td></td><td></td><td></td><td>1</td><td>1</td><td></td><td></td><td>1</td><td>15</td><td>8</td><td>2</td><td></td><td></td></tr><tr><td>Auckland</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>18</td><td></td><td></td></tr><tr><td>Southern</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>15</td><td></td><td></td><td></td></tr></table>		Area/year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	Open Holes	Carrington	43	20	31							11	102			Cheshunt	23	7	2	6	16	43		3	19	51		2	15	West	37			25		9	134	38			6	5	4	Mitchell	13										43			Riverview	84			8		29		26	14	47		24	33	Southern										12	25			Cored Holes	Carrington		1	7				17	4		5	40			Cheshunt	10	1		5	5	8		4	8	8	4		2	West	4	7		8		3	7	4	4	3	9		2	Mitchell										5	1			Riverview				1	1			1	15	8	2			Auckland											18			Southern										15			
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Data aggregation methods	<ul style="list-style-type: none"><li>Ply samples are combined to create composites (for washability and product coal analyses) representing mineable seam working sections.</li></ul>																																																																																																																																																																																																							

Relationship  
between  
mineralisation  
widths and  
intercept lengths

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

Diagrams

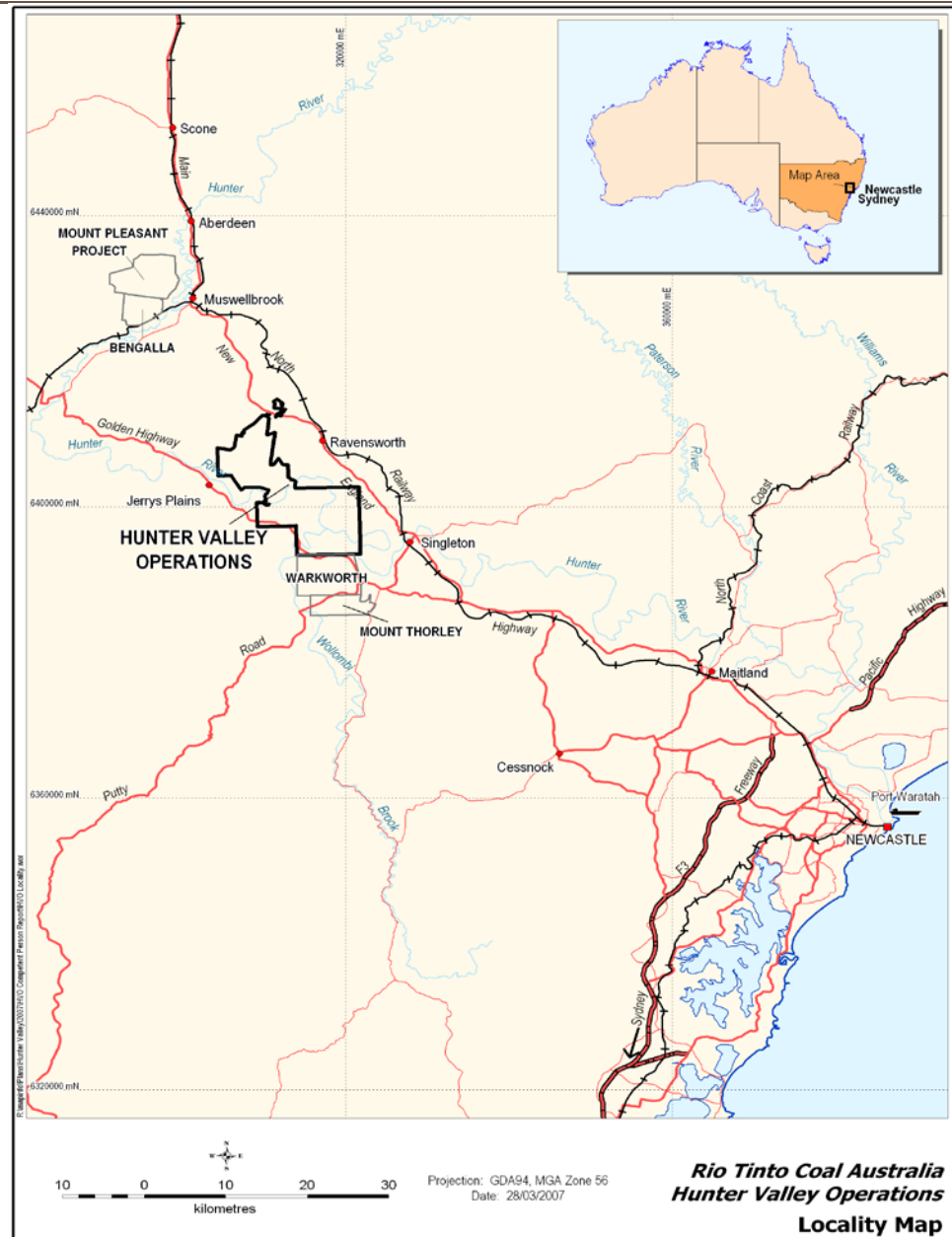
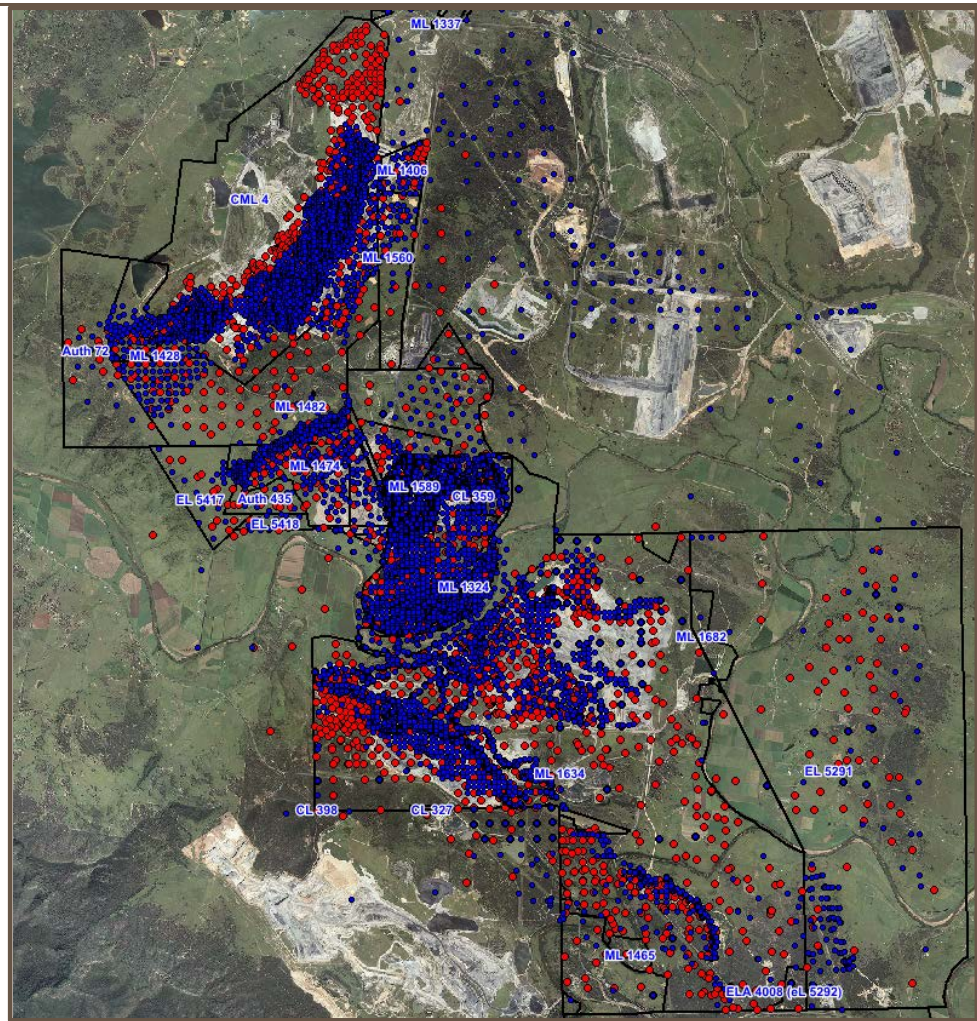


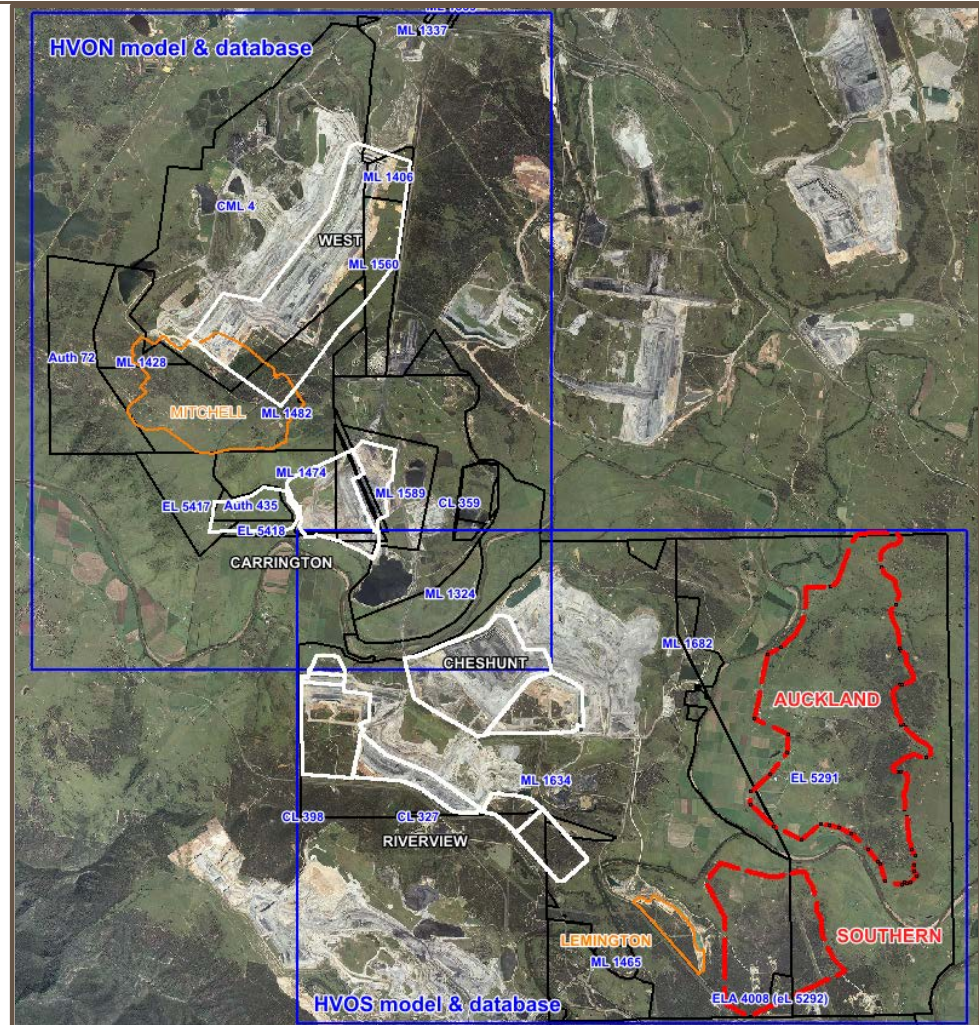
Figure 2: HVO location





*Open holes (blue); cored holes (red)*

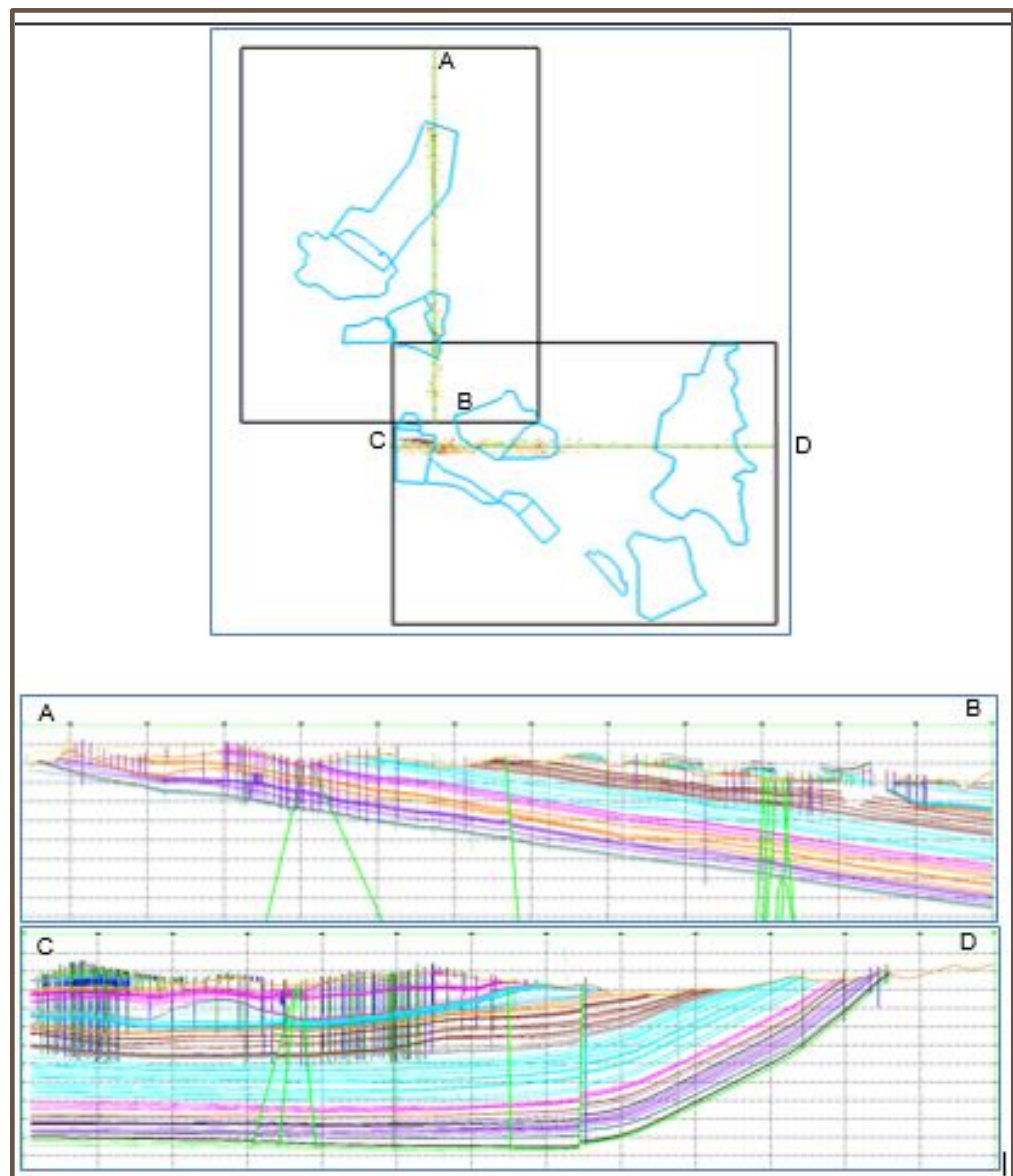
**Figure 3: Schematic drill collar locations**



*Model extents (blue); active pits (white); inactive pits (orange); prospects Auckland & Southern (red)*

**Figure 4: Schematic HVO open-cut pits**





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

**Figure 5: Schematic HVO cross-sections**

Balanced reporting	<ul style="list-style-type: none"> <li>Not applicable. Rio Tinto Coal Australia has not specifically released exploration results for these deposits.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>In addition to drilling, resistivity surveys, ground and airborne magnetic surveys have been completed to identify faults, dykes, and alluvial limits.</li> </ul>

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## Further work

- Drilling for both pre-production and strategic brown/green fields drilling is ongoing and analytical (CQ, geotechnical, gas) results will be ongoing.
  - Greenfields exploration includes investigations in the Auckland and Southern areas. In addition regional scale exploration and evaluation are being made to assess the underground potential of HVO and the adjoining areas (Mount Thorley Warkworth (MTW) directly south of HVO).
-

## SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria	Commentary
Database integrity	<ul style="list-style-type: none"> <li>All drill hole data are securely stored in a database which is duplicated on multiple servers (HVO and Singleton) and is backed up daily.</li> <li>Data are validated at the drill site and also prior to loading into the database by the responsible geologist.</li> <li>The database contains automated validation processes, during data loading and prevents invalid data being loaded.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>The Resources Competent Person visited HVO in 2014.</li> </ul>
Geological interpretation	<ul style="list-style-type: none"> <li>The deposit is well known and tabular with all major structures and coal seam continuity (including coal quality) and limits (i.e. LOX, sub-crop and igneous intrusions) defined. Infill drilling, mining exposure and mapping have supported and refined the model. The current interpretation is thus considered to be robust.</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>The deposit trends 20km northwest to southeast and is 10km in width. The deposit extends to a depth of 515m below the topographic surface.</li> </ul>
Estimation and modelling techniques	<ul style="list-style-type: none"> <li>Modelling was completed using resource modelling software. For structural modelling a proprietary fine element method (FEM) interpolator is used and for CQ an inverse distance squared interpolator is used. All surfaces and coal qualities are interpolated into grids with 50m × 50m node spacing.</li> <li>Two models, (HVON) for north of the Hunter River and (HVOS) for south of the Hunter River, have been created.</li> <li>The models are of the coal seams only with waste modelled by default. Resource estimates are therefore of the coal seams only and restricted on a whole seam group basis only.</li> <li>Modelling is completed on an iterative basis by checking 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.</li> </ul>
Moisture	<ul style="list-style-type: none"> <li>All tonnages are estimated on an in situ moisture basis, which is determined as air-dried moisture content plus 4%.</li> <li>This number is derived using the assumption that the run of mine (ROM) and in situ moisture are comparable. At HVO, the run of mine (ROM) moisture content is not well understood due to the lack of sampling equipment on the feed to the coal handling and preparation plant (CHPP). At MTW, which has such equipment, the ROM moisture is typically 4% higher than the air-dried moisture content. Since the coals mined at HVO and MTW are similar rank and largely from the same sequence, the same relationship is assumed to be valid at HVO.</li> </ul>

Cut-off parameters	<ul style="list-style-type: none"> <li>Nominally coal is washed to produce a semi-soft coking coal product at 9% air-dried ash or to three types of thermal products (11% air-dried ash, 13% air-dried ash and 18% air-dried ash). For all products, product moisture is at 9%. Air-dried is quoted at a 2.5% moisture basis.</li> <li>A minimum coal thickness of 0.25m and density of 1.8 g/m<sup>3</sup> are applied as cut-off parameters for reporting coal.</li> <li>Economic resources are defined by a “break even” (\$0 margin) Lerchs-Grossman optimised shell for opencast coal – this effectively sets the maximum depth or lowermost seam considered. For underground resources the limits are based on either an order of magnitude study or standard set of rules (i.e. coal below “break even” shell, less than 600m deep and greater than 1.8m thick).</li> </ul>
Mining factors or assumptions	<ul style="list-style-type: none"> <li>Development of this Mineral Resource estimate assumes mining using standard Rio Tinto Coal Australia equipment. The assumed mining method is overburden removal via draglines, and conventional truck and shovel open-cut coal mining.</li> <li>Mining practices utilise detailed extraction plans to effectively manage grade control. These extraction plans are generated from real time blast hole drill compliance monitoring, in-pit visual inspections and survey monitoring and control.</li> </ul>
Metallurgical factors or assumptions	<ul style="list-style-type: none"> <li>A combination of density separation (magnetite/water) and fines flocculation processes are used for the processing of HVO coal.</li> </ul>
Environmental factors or assumptions	<ul style="list-style-type: none"> <li>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.</li> </ul>
Bulk density	<ul style="list-style-type: none"> <li>Certain boreholes samples have only true relative density (RD) analysis; some have both apparent relative density (ARD) and true RD, and most have ARD. Relationships between ARD and RD were determined from the paired sets of ARD and RD analyses. The relationships used to populate the ply by ply data with missing ARDs or RDs are: <math>RD(ad) = 1.042 \times ARD(ad) - 0.018</math>.</li> <li>The in situ relative density (i.e. the density of materials at an in situ moisture basis) is calculated using the Preston and Sanders equation:  <math display="block">RD2 = [RD1 \times (100 - M1)] / [100 + RD1 \times (M2 - M1) - M2]</math> </li> <li>Where RD1 is true RD (ad), M1 is moisture (ad) and M2 is the in situ moisture (M1 + 4).</li> </ul>
Classification	<ul style="list-style-type: none"> <li>The classification of the Mineral Resources into varying confidence categories is based on a standardised process of utilising points of observation (PoO). Drill holes are assessed according to their reliability and value in estimation. The PoOs are used to categorise structure and quality continuity.</li> <li>Radii of influence are then plotted around PoO maps for structure and quality. The radii of influence were determined by consideration of the observed variability in structure and CQ for seam groups, and by examining histograms and statistics of ash content of seam groups. As there are many plies at HVO, seam groups (equivalent to the seam names) were used for categorisation.</li> </ul>

	<ul style="list-style-type: none"> <li>• Areas of confidence (low, medium, high) are produced from these plots (structure, CQ for each seam group) and finally these are combined to produce areas of Measured, Indicated and Inferred Resources which are used to subdivide the tonnage estimates.</li> <li>• In summary structural radii range 175-250m for high confidence, 350-500m for medium and 1,400-2,000m for low; and, for CQ 450-500m radii for high, 900-1,000m for medium and 2,700-3,000m for low confidence respectively. The ranges reflect variability within the nineteen seam groups modelled at HVO.</li> <li>• The Competent Person is satisfied that the stated Mineral Resource classification reflects the geological controls interpreted and the estimation constraints of the deposits.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>• In September 2011 an audit into the modelling and Resource estimation process at HVO was completed (report: <i>Rio Tinto Corporate Assurance Resources and Reserves Internal Audit Report. Hunter Valley Operations. 2.1</i>).</li> <li>• The outcome of this audit was overall a satisfactory rating with a number of recommendations made and acted upon by Rio Tinto Coal Australia.</li> </ul>
Discussion of relative accuracy/confidence	<ul style="list-style-type: none"> <li>• Rio Tinto Coal Australia operates multiple mines in NSW and Queensland. The Mineral Resource data collection and estimation techniques used for the HVO deposit are consistent with those applied at other deposits which are being mined.</li> <li>• Reconciliation of actual production with the Mineral Resource estimates for the existing operational deposits are generally within 3% for tonnes. This result is indicative of a robust process.</li> <li>• Accuracy and confidence of Mineral Resource estimate has been accepted by the Competent Person.</li> </ul>

## SECTION 4 ESTIMATION AND REPORTING OF ORE RESERVES

Criteria	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul style="list-style-type: none"> <li>• A 3D gridded Resource model of topography, structure and quality are used for in situ Resource definition.</li> <li>• Mine design strips and 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 or seam aggregations, mining methods and associated loss and dilution impacts. The mine schedule database is used as the basis for Ore Reserves reporting.</li> <li>• Mineral Resources are exclusive of Ore Reserves.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>• The Reserves Competent Person visited HVO in 2014.</li> </ul>
Study status	<ul style="list-style-type: none"> <li>• HVO is an operating mine project. 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.</li> </ul>

Cut-off parameters	<ul style="list-style-type: none"> <li>• Periodic (&lt;3yrs) pit optimisation work used to define pit shells is conducted using Rio Tinto economics prices and an estimate of unit operating costs including a \$/ROMt allowance for sustaining capex. This process was conducted in 2014 and led to the inclusion of additional pits in the LOM plan and ultimately additional reserves.</li> <li>• 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, and incremental and sustaining capital.</li> <li>• A discounted cashflow analysis is conducted to re-assess under the latest economic assumptions the potential Reserves that remain net cashflow positive.</li> </ul>
Mining factors or assumptions	<ul style="list-style-type: none"> <li>• The HVO mine utilises dragline, and truck and shovel for waste movement, while coal is loaded using a combination of loaders and excavators with haulage to the ROM hopper undertaken using rear dump trucks. The operations are supported by additional equipment including dozers, graders, and water carts.</li> <li>• All pit end walls have benched and battered designs based on the existing operation with allowances made for increasing depth of mining. The design provides for mining roadways and catch benches.</li> <li>• Working section or seam aggregation logic pre-determines what is defined as mineable coal by applying working section tests based on minimum coal thickness of 30cm, and a maximum raw ash of 50% on an air-dried basis. A review of the aggregation rules in relation to actual mining methods, led to an increase in Reserves in two pits.</li> <li>• Coal loss and dilution factors are also applied and vary by the equipment type uncovering the various coal seams (i.e. excavator/truck versus dragline). Typical roof and floor coal loss thickness ranges from 5cm–25cm. Typical roof and floor waste dilution thickness ranges from 3cm–7cm.</li> <li>• LOM plans 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 referred to as Reserves. Neither are they reported in either JORC or Securities and Exchange Commission compliant reserve statements.</li> <li>• The HVO LOM valuation has been tested removing the inferred and unclassified coal from the schedule to ensure they still remain compliant.</li> </ul>



Metallurgical factors or assumptions	<ul style="list-style-type: none"> <li>• HVO has three CHPPs: Hunter Valley CHPP, West Pit CHPP and the Newdell CHPP.</li> <li>• Only Hunter Valley CHPP and West Pit CHPP are operational, with Newdell CHPP used purely as a coal handling plant and no longer used to wash coal.</li> <li>• The processes used are standard for the coal industry and so are well tested technologies.</li> <li>• All samples are wash/cut-point tested and so the representativeness of test work undertaken is implicit in the Resource classification status.</li> <li>• In-seam dilution is included in sample testing.</li> <li>• Ore Reserve estimation is based on existing product specifications.</li> <li>• The reduction in yield can be attributed to:               <ul style="list-style-type: none"> <li>○ Updated geological model</li> <li>○ Removal of yield and ROM recovery factors from the scheduling model, reverting yields back to modelled yields – this leads to more conservative yields in comparison to the annual reconciliation of approximately 3% points.</li> </ul> </li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• HVO has a large number of current mining and exploration titles.</li> <li>• All the various mining leases across HVO are defined by a 21 year consent limit. This consent limit is particular to each mining lease, and as such leases are constantly being renewed. There is a dedicated tenements manager to ensure the application for lease renewal occurs on time. All necessary Government approvals are expected to be received within the timeframes anticipated in the LOM plan.</li> <li>• Coarse rejects are dumped within the mine overburden dumps, while the fines coal washery rejects are stored within dedicated tailings dams. Rejects material and completed tailings dams must be covered by at least 3m of inert waste rock material.</li> <li>• Overburden waste rock has low acid forming potential.</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>• HVO 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.</li> </ul>

Costs	<ul style="list-style-type: none"> <li>• Based on detailed annual operating plan (AOP) process. Beyond AOP, sustaining capex based on \$/ROMt plus equipment replacements and additions required to deliver the mine plan.</li> <li>• First principles estimating and aligned with AOP. Budget prices for major consumables and labour.</li> <li>• Adjustments are made for energy.</li> <li>• Commodity prices are supplied by Rio Tinto Economics and Markets Team (RTEM), based on: expected demand, current supply, known expansions, and expected incentivised supply.</li> <li>• Exchange rates are supplied by RTEM.</li> <li>• Transport charges are obtained from coal chain team based on existing contracts and expected tonnages.</li> <li>• State Government royalties, based on current NSW royalty rates.</li> <li>• Additional Reserves were added due to an improved operational cost focus, leading to a demonstrated reduction in unit cost over 2013.</li> </ul>
Revenue factors	<ul style="list-style-type: none"> <li>• Rio Tinto applies a common process to the generation of commodity prices 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.</li> </ul>
Market assessment	<ul style="list-style-type: none"> <li>• 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.</li> </ul>
Economic	<ul style="list-style-type: none"> <li>• 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.</li> </ul>
Social	<ul style="list-style-type: none"> <li>• There are no native title claims over the HVO. No Reserves have been omitted on this basis.</li> <li>• Rio Tinto Coal Australia established the Upper Hunter Valley Cultural Heritage Working Group as a consultation and management process to negotiate cultural heritage issues with local Aboriginal communities. As part of releasing a ground disturbance permit on site, authority must be gained to destroy/remove sites of cultural interest. This involves archaeological mapping and removal of artefacts prior to ground disturbance.</li> <li>• There are no sites of European cultural heritage at HVO.</li> </ul>
Other	<ul style="list-style-type: none"> <li>• 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.</li> </ul>

Classification	<ul style="list-style-type: none"> <li>The Ore Reserves consist of 59% Proved Reserves and 28% Probable Reserves.</li> <li>The Competent Person is satisfied that the stated Ore Reserve classification reflects the outcome of technical and economic studies.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>HVO has had one audit completed in the past five years. The audit was conducted in September 2011 by the Quantative Group Pty Ltd (report: <i>Rio Tinto Corporate Assurance Resources and Reserves Internal Audit Report. Hunter Valley Operations. 2.1</i>). The review concluded that the fundamental data collection techniques are appropriate and consistent with previously audited HVO models.</li> </ul>
Discussion of relative accuracy/confidence	<ul style="list-style-type: none"> <li>Rio Tinto Coal Australia operates multiple mines in Queensland and New South Wales. The Ore Reserve estimation techniques utilised for HVO 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.</li> <li>Accuracy and confidence of modifying factors are generally consistent with the current operation.</li> </ul>

## Appendix 2 - Bengalla Mine Table 1

The following table provides a summary of important assessment and reporting criteria used at the Bengalla Mine (BMC) for the reporting of exploration results and Mineral Resources 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

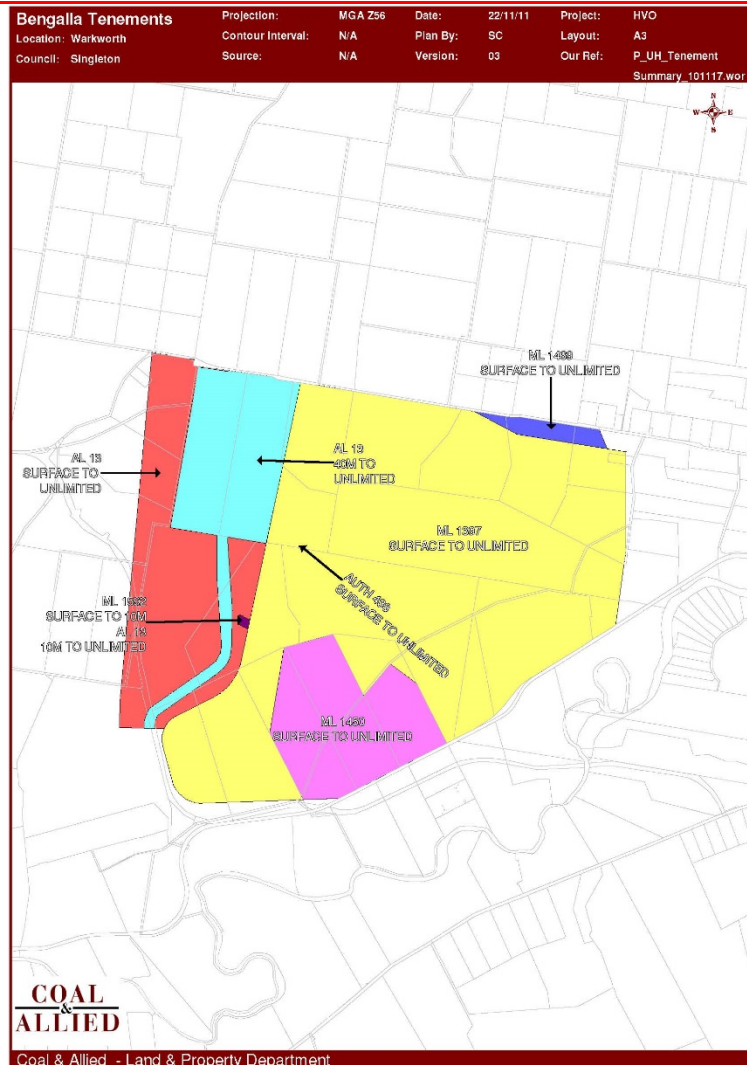
Criteria	Commentary
Sampling techniques	<ul style="list-style-type: none"> <li>A combination of open hole (predominantly for structural definition) and cored (for coal quality (CQ), geotechnical and gas sampling) have been used.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>1,457 drill holes (159,726m) support the Resource estimate. Cored drilling represents 17% of the total metres and open hole drilling 83%. The drill holes are up to 385m in length and average 102m. The drill holes were all nominally recorded as vertical - boreholes which deviated by more than 4% from vertical of the total drill holes length the drill hole were redrilled.</li> <li>Coring has predominantly been done using a HQ3-sized (63mm) bit and open hole drilling to an equivalent hole diameter size. In addition a number of large diameter holes (LD) have been drilled including: 10 holes at 100mm (4"), 9 holes at 150mm (6"), 19 holes at 200mm (8") [16 fully cored;3 part cored].</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>Standardised Rio Tinto Coal Australia logging systems are utilised for all drilling, logging and sampling.</li> <li>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.</li> <li>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.</li> <li>Open hole chip recovery is assessed qualitatively by the rig geologist.</li> </ul>
Logging	<ul style="list-style-type: none"> <li>Core is geologically and geotechnically logged and open hole chip samples are taken every 1m and logged for lithology changes. Logging for lithology, grain size, weathering and hardness is conducted using standard dictionary definitions. Colour and any additional qualitative comments are also recorded.</li> <li>All core is photographed on the core table (0.5m increment) and in 4m (HQ) or 5m (N/PQ) trays. Chip samples are photographed in 1m intervals.</li> <li>All holes are logged using a comprehensive suite of downhole geophysics tools (calliper, gamma, density, neutron, and sonic) with the addition of acoustic scanner that is used for geotechnical assessment in cored holes.</li> </ul>

Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>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.</li> <li>All samples are weighed, air-dried, and re-weighed before being crushed to an 11.2mm top size. A rotary splitter is used to divide the sample into portions available for further CQ analysis.</li> <li>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 geologist.</li> <li>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.</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>Non-formalised quality assurance/quality control (QAQC) involving duplicate samples is completed and, 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.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>All CQ sampling and analysis is overseen and checked by Rio Tinto personnel.</li> <li>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) to a geological database.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>The BMC topography surface is derived from a computer-based grid file which was updated using drill hole collars – the original provenance of this file is not clear however it has been benchmarked against publically available 5m digital terrain model contours. The digital terrain model was created with a 20m x 20m cell size triangulation at 0.2m decimation.</li> <li>All surveyed coordinates are within Map Grid of Australia 1994 (MGA94) Zone 56 using the GDA94 datum.</li> <li>Drill hole collars were surveyed post drilling by licensed surveyors using differential global positioning system with an accuracy of <math>\pm 10\text{mm}</math>.</li> <li>Downhole surveying has been undertaken using downhole verticality and calliper tools since 2006. Some earlier downhole survey work was completed prior to 2006; however, this was not completed on all holes.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>Drill hole spacing for core holes is on an anisotropic grid, 350m along strike and 250m in dip direction. Both core and non-core holes were drilled within the conceptual pit area.</li> <li>All core samples are composited within defined seam boundaries.</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>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.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>Core and chip samples are taken at the drill site and transported back to the core shed at the completion of the hole. At the completion of drilling, CQ samples are transported to the laboratory for testing.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>No external audits have been completed.</li> </ul>

- Internal Rio Tinto Coal Australia peer and technical reviews have been completed, and are ongoing. 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"> <li>• BMC is operated by Coal &amp; Allied Ltd (CNA) on behalf of the joint venture partners, listed below: <ul style="list-style-type: none"> <li>○ CNA Bengalla Investments Pty Ltd* (40% share)</li> <li>○ Wesfarmers Bengalla Limited (40% share)</li> <li>○ Taipower Bengalla Pty Limited (10% share)</li> <li>○ Mitsui Bengalla Investments Pty Limited (10% share)</li> </ul> <p>* CNA Bengalla is 80% owned by Rio Tinto through direct interest in C&amp;A</p> </li> <li>• BMC consists of the following leases and authorisations (see, Figure 1): <ul style="list-style-type: none"> <li>○ 4 x mining leases covering 1214.62ha</li> <li>○ 1 x assessment lease covering 440.2ha</li> <li>○ 1 x authorisation covering 0.066ha</li> </ul> </li> <li>• The assessment lease is pending renewal; all others are in good stead.</li> </ul>



**Figure 6 Bengalla Mine tenements**

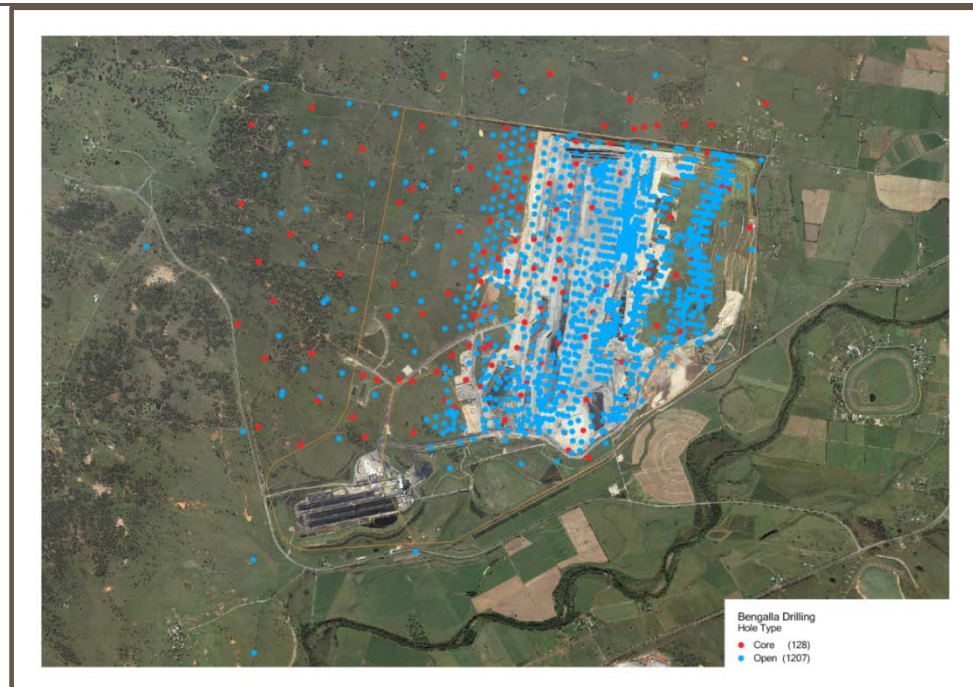
Exploration done by other parties	<ul style="list-style-type: none"> <li>All exploration after 1991 was conducted by the Bengalla Joint Venture (formerly the Roxburgh Coal Consortium).</li> <li>Prior to 1991 the following exploration was completed:               <ul style="list-style-type: none"> <li>1970-71: Amoco (Australia) Pty Ltd drilled 14 holes (including Bengalla)</li> <li>1975: the NSW Department of Mineral Resources commissioned a 16 hole exploration programme.</li> </ul> </li> </ul>
Geology	<ul style="list-style-type: none"> <li>BMC is located in the Hunter Coalfield in the northern part of the Sydney Basin, which contains numerous important coal producing intervals in the Permian stratigraphy. The Late Permian Wittingham Coal Measures are further subdivided into the Vane (lower most seams) and Jerrys Plains Subgroups, which host the main coal deposits mined at Bengalla. The main rock types of these subgroups are sandstone, siltstone, and conglomerate, which occur with subordinate coal and tuffaceous claystone.</li> </ul>
Drill hole information	<ul style="list-style-type: none"> <li>Drilling data summary:</li> </ul>

		1991-92	1993	1996-97	2002	2005-06	2007	2008	2009	2010	2011	2012	2013	2014
	Open holes	96	-	398	173	70	33	55	44	14	16	44	55	56
	Coreholes	26	-	-	-	8	5	9	14	29	11	13	5	6
	LD holes	9	16	13	-	-	-	-	-	-	-	-	-	-
Data aggregation methods	<ul style="list-style-type: none"> <li>Ply samples are combined to create composites (for washability and product coal analyses) representing mineable seam working sections.</li> </ul>													
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"> <li>Based on the drilling techniques, and stratigraphy, the coal seam intercepts approximate the true vertical thickness of the coal.</li> </ul>													
Diagrams														



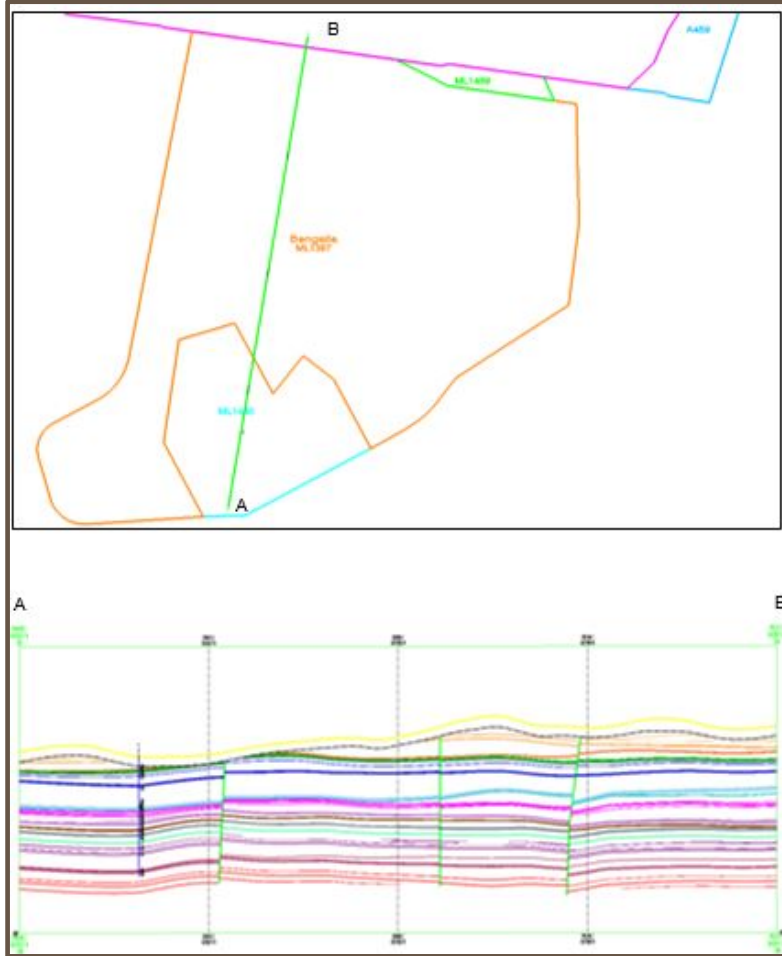


**Figure 7 Bengalla Mine location**

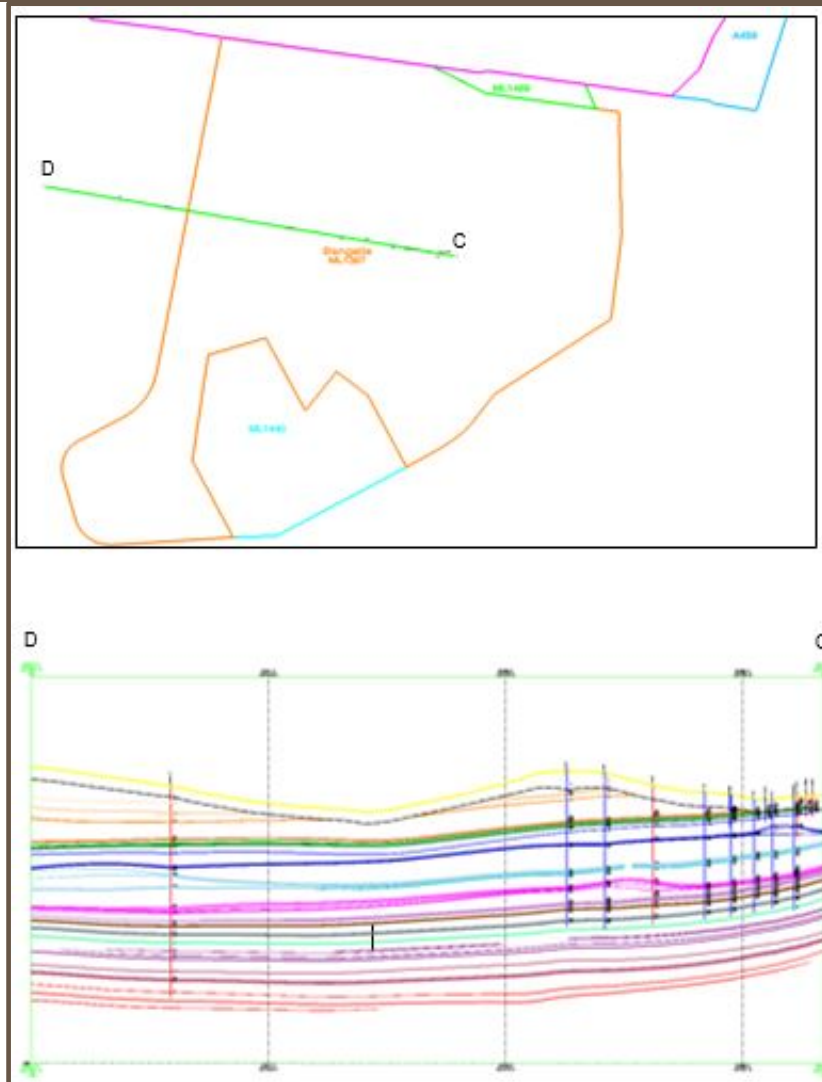


*Red = cored holes, Blue = open holes*

**Figure 3 Schematic Drill Hole collar locations**



**Figure 4 Schematic Bengalla cross-section: south to north**



*Shown with 3x vertical exaggeration*  
**Figure 5 Schematic Bengalla cross-section: west to east**

Balanced reporting	<ul style="list-style-type: none"> <li>Not applicable. Rio Tinto Coal Australia has not specifically released exploration results for these deposits.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>In addition to drilling, a groundwater study, ground magnetic survey, aerial photography / field mapping, and lineament studies have been completed.</li> </ul>
Further work	<ul style="list-style-type: none"> <li>Drilling for both pre-production and strategic brownfield/greenfield drilling is ongoing and analytical (CQ, geotechnical, and gas) results will be ongoing.</li> </ul>

## SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria	Commentary
Database integrity	<ul style="list-style-type: none"> <li>All drill hole data are securely stored in a database which is duplicated on</li> </ul>

	<p>multiple servers (BMC and Singleton) and is backed up daily.</p> <ul style="list-style-type: none"> <li>• Data are validated at the drill site and also prior to loading into the database by the responsible geologist.</li> <li>• The database contains automated validation processes, during data loading and prevents invalid data being loaded.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>• The Resources Competent Person visited Bengalla in 2014.</li> </ul>
Geological interpretation	<ul style="list-style-type: none"> <li>• The deposit is well known and tabular with all major structures and coal seam continuity (including coal quality) and limits (i.e. LOX, sub-crop and igneous intrusions) defined. Infill drilling, mining exposure and mapping has supported and refined the model. The current interpretation is thus considered robust.</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>• The deposit trends 4km northwest to southeast and is 4.8km in width. The deposit extends to a depth of ~300m below the topographic surface.</li> </ul>
Estimation and modelling techniques	<ul style="list-style-type: none"> <li>• Modelling was completed using resource modelling software. For structural modelling a proprietary fine element method (FEM) interpolator is used and for CQ an inverse distance squared interpolator is used. All surfaces and coal qualities are interpolated into grids with 20m × 20m node spacing.</li> <li>• The model is of the coal seams only with waste modelled by default. Resource estimates are therefore of the coal seams only and restricted on a whole seam group basis only.</li> <li>• Modelling is completed on an iterative basis by checking 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.</li> </ul>
Moisture	<ul style="list-style-type: none"> <li>• All tonnages are estimated on an in situ moisture basis, which is determined to be air-dried moisture content plus 5%.</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li>• Coal is currently processed to produce four thermal products ranging from 9% air-dried ash to 26% air-dried ash, at 11% product moisture. Air-dried is quoted at a 3% moisture basis.</li> <li>• A minimum coal thickness of 0.25m and density of 1.8 g/m<sup>3</sup> are applied as cut-off parameters for reporting coal.</li> <li>• Economic resources are defined by a “break even” (\$0 margin) Lerchs-Grossman optimised shell for opencast coal – this effectively sets the maximum depth or lowermost seam considered. For underground resources the limits are based on either an order of magnitude study or standard set of rules (i.e. coal below “break even” shell, less than 600m deep and greater than 1.8m thick).</li> </ul>
Mining factors or assumptions	<ul style="list-style-type: none"> <li>• Development of this Mineral Resource estimate assumes mining using standard Rio Tinto Coal Australia equipment. The assumed mining method is overburden removal via draglines, and conventional truck and shovel open-cut coal mining.</li> <li>• Mining practices utilise detailed extraction plans to effectively manage quality control. These extraction plans are generated from real time blast hole drill compliance monitoring, in-pit visual inspections and survey monitoring and control.</li> <li>• Conceptual underground mining has been assessed to be by longwall methods.</li> </ul>
Metallurgical factors	<ul style="list-style-type: none"> <li>• It is assumed that a combination of density separation (magnetite/water) and</li> </ul>

or assumptions	<p>finer flocculation processes used by Rio Tinto Coal Australia will be applicable for the processing of Bengalla coal.</p>
Environmental factors or assumptions	<ul style="list-style-type: none"> <li>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.</li> </ul>
Bulk density	<ul style="list-style-type: none"> <li>Relationships between apparent relative density (ARD) and relative density (RD) were determined and used to populate the calculated RD for all ARD values: <ul style="list-style-type: none"> <li>converting ARD to RD</li> <li><math>RD_{calc} = 1.0016 \times ARD + 0.0645</math>, where <math>R^2 = 0.956</math></li> </ul> </li> <li>The in situ relative density (i.e. the density of materials at an in situ moisture basis) is calculated using the Preston and Sanders equation: <math display="block">RD2 = [RD1 \times (100 - M1)] / [100 + RD1 \times (M2 - M1) - M2]</math> <p>Where RD1 is true RD (ad), M1 is moisture (ad) and M2 is the in situ moisture (M1 + 4).</p> </li> </ul>
Classification	<ul style="list-style-type: none"> <li>The classification of the Mineral Resources into varying confidence categories is based on a standardised process of utilising points of observation (PoO). Drill holes are assessed according to their reliability and value in estimation. The PoOs are used to categorise structure and quality continuity.</li> <li>Radii of influence are then plotted around PoO maps for structure and quality. The radii of influence were determined by consideration of the observed variability in structure and CQ for seam groups, and by examining histograms and statistics of ash content of seam groups. As there are many plies at Bengalla, seam groups (equivalent to the seam names) were used for categorisation.</li> <li>Areas of confidence (low, medium, high) are produced from these plots (structure, CQ for each seam group) and finally these are combined to produce areas of Measured, Indicated and Inferred which are used to subdivide the Resource tonnage estimates.</li> <li>In summary structural radii range 150-225m for high confidence, 300-450m for medium and 1,200-1,800m for low; and, for CQ 200-450m radii for high, 400-900m for medium and 1,200-2,700m for low confidence respectively. The ranges reflect variability within the twelve seam groups modelled at Bengalla.</li> <li>The Competent Person is satisfied that the stated Mineral Resource classification reflects the geological controls interpreted and the estimation constraints of the deposits.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>No formal audits have been completed on the estimation and reporting of Mineral Resources at BMC to-date.</li> </ul>
Discussion of relative accuracy/ confidence	<ul style="list-style-type: none"> <li>Rio Tinto Coal Australia operate multiple mines in New South Wales (NSW) and Queensland (QLD). The Mineral Resource data collection and estimation techniques used for the BMC deposit are consistent with those applied at other deposits which are being mined. Reconciliation of actual production with the Mineral Resource estimates for the existing operational deposits are generally within 3% for tonnes. This result is indicative of a robust process.</li> <li>Accuracy and confidence of the Mineral Resource estimate has been accepted by the Competent Person.</li> </ul>



## SECTION 4 ESTIMATION AND REPORTING OF ORE RESERVES

Criteria	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul style="list-style-type: none"> <li>A 3D gridded Resource model of topography, structure and quality are used for in situ Resource definition.</li> <li>Mine design strips and 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 or seam aggregations, mining methods and associated loss and dilution impacts. The mine schedule database is used as the basis for Ore Reserves reporting.</li> <li>Mineral Resources are exclusive of Ore Reserves.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>The Reserves Competent Person visited Bengalla Mine in 2014.</li> </ul>
Study status	<ul style="list-style-type: none"> <li>BMC 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.</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li>Periodic pit optimisation work used to define pit shells is conducted using Rio Tinto Economics and Markets Team prices and an estimate of unit operating costs, including a \$/ROMt allowance for sustaining capex. This process was most recently conducted in 2014 and confirmed the long term economic viability of Bengalla Mine.</li> <li>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, and incremental and sustaining capital.</li> <li>A discounted cashflow analysis is conducted to re-assess under the latest economic assumptions the potential Reserves that remain net cashflow positive.</li> </ul>

Mining factors or assumptions	<ul style="list-style-type: none"> <li>• BMC utilises dragline, truck and shovel for waste movement, while coal is loaded using a combination of loaders and excavators with haulage to the run of mine (ROM) hopper undertaken using rear dump trucks. The operations are supported by additional equipment including dozers, graders and water carts.</li> <li>• All pit end walls have benched and battered designs based on the existing operation with allowances made for increasing depth of mining. The design provides for mining roadways and catch benches.</li> <li>• Working section or seam aggregation logic pre-determines what is defined as mineable coal by applying working section tests based on minimum practical coal thickness (typically 30cm), and a maximum raw ash of 51.6% on an air-dried basis.</li> <li>• Coal loss and dilution factors are also applied and vary by the equipment type uncovering the various coal seams (i.e. excavator/truck versus dragline). Typical roof and floor coal loss thickness ranges from 2cm–10cm. Typical roof and floor waste dilution thickness ranges from 2cm–6cm.</li> <li>• LOM plans 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 reported in JORC or Securities and Exchange Commission compliant Reserve statements.</li> <li>• BMC has only very limited (&lt;2%) Inferred or unclassified coal within the existing LOM plan.</li> </ul>
Metallurgical factors or assumptions	<ul style="list-style-type: none"> <li>• BMC has a coal handling and processing plant (CHPP) on site.</li> <li>• The processes used are standard for the coal industry and so are well tested technologies.</li> <li>• All samples are wash/cut-point tested and so the representativeness of test work undertaken is implicit in the Resource classification status.</li> <li>• In-seam dilution is included in sample testing.</li> <li>• Ore Reserve estimation is based on existing product specifications.</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• BMC has a current 21 year development consent that allows for coal mining and processing operations on site. BMC is currently seeking its next 21 year continuation of mining development consent. All necessary Government approvals are expected to be received within the timeframes anticipated in the LOM plan.</li> <li>• The proportion of waste rock with acid forming potential is small.</li> <li>• All rejects are co-disposed within the mines overburden emplacement areas. Reject material, plus any waste rock that has been classified as having acid forming potential is actively managed on site.</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>• BMC 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.</li> </ul>

Costs	<ul style="list-style-type: none"> <li>BMC is an operating site. Operating and capital cost estimation is carried out on a regular basis as part of Rio Tinto's detailed annual operating plan (AOP) process. This includes first principles cost estimation for labour and major consumables to deliver the AOP. For longer term capital cost estimation (outside of the AOP timeframe), estimates are based on an assumed unit cost basis to cover miscellaneous items, in conjunction with specific costs anticipated from projected equipment replacements and additions required to deliver the production profile.</li> <li>Commodity prices have been supplied by the Rio Tinto Economics and Markets Team (RTEM), based on: expected demand, current supply, known expansions, and expected incentivised supply.</li> <li>Exchange rates have been supplied by RTEM.</li> <li>Transport charges have been obtained from Rio Tinto coal chain team based on existing contracts and expected tonnages.</li> <li>Allowances have been made for NSW State Government royalties based on current legislation.</li> </ul>
Revenue factors	<ul style="list-style-type: none"> <li>BMC has been valued assuming all coal is sold out of the Port of Newcastle as an export thermal coal, using an energy adjusted price formula.</li> <li>Rio Tinto applies a common process to the generation of commodity prices 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.</li> </ul>
Market assessment	<ul style="list-style-type: none"> <li>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.</li> </ul>
Economic	<ul style="list-style-type: none"> <li>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.</li> </ul>
Social	<ul style="list-style-type: none"> <li>Rio Tinto Coal Australia established the Upper Hunter Valley Cultural Heritage Working Group as a consultation and management process to negotiate cultural heritage issues with local Aboriginal communities. As part of releasing a ground disturbance permit on site, authority must be gained to destroy/remove sites of cultural interest. This involves archaeological mapping and removal of artefacts prior to ground disturbance.</li> <li>There are two sites of European Cultural Heritage at Bengalla: Overdene Homestead and Bengalla Homestead. Both sites are located outside the area of mineable Reserves.</li> </ul>
Other	<ul style="list-style-type: none"> <li>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.</li> </ul>

Classification	<ul style="list-style-type: none"> <li>• The Ore Reserves consist of approximately 60% Proved Reserves and 40% Probable Reserves.</li> <li>• The Competent Person is satisfied that the stated Ore Reserve classification reflects the outcome of technical and economic studies.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>• No external audits have been performed.</li> <li>• Internal Rio Tinto Coal Australia peer review processes have been completed. These reviews concluded that the fundamental data collection techniques are appropriate.</li> </ul>
Discussion of relative accuracy/ confidence	<ul style="list-style-type: none"> <li>• Rio Tinto Coal Australia operates multiple mines in Queensland and NSW. The Ore Reserve estimation techniques utilised for the Hunter Valley Operation 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.</li> <li>• Accuracy and confidence of modifying factors are generally consistent with the current operation.</li> </ul>

## Appendix 3 - Mount Pleasant Project Table 1

The following table provides a summary of important assessment and reporting criteria used at the Mount Pleasant Project (MTP) for the reporting of exploration results and Mineral Resources 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"> <li>A combination of open hole (predominantly for structural definition) and cored (for coal quality (CQ), geotechnical, and gas sampling) have been used.</li> </ul>
Drilling techniques	<ul style="list-style-type: none"> <li>Note that Rio Tinto Coal Australia drilled from 1992 until 2010, with no drilling having taken place from 2011 to present day.</li> <li>682 drill holes (79,050 metres) support the Resource estimate. This total includes some holes strictly belonging to the dataset from the adjoining Bengalla deposit. Cored drilling represents 31% of the total metres drilled and open hole drilling 69%. The drill holes are up to 312m in length and average 198m. Of the holes modelled, 278 are part of the drilling programme completed at the neighbouring Bengalla Mine and have been included to increase Mount Pleasant (MTP)'s model resolution.</li> <li>The drill holes were all nominally recorded as vertical.</li> <li>Coring has predominantly been done using a HQ-sized (96mm) bit and open hole drilling to an equivalent hole diameter size. In addition 22 large diameter (LD) holes at 200mm (8") have been drilled.</li> </ul>
Drill sample recovery	<ul style="list-style-type: none"> <li>Standardised Rio Tinto Coal Australia logging systems were utilised for all drilling logging and sampling.</li> <li>Core recovery is recorded by the geologist while logging the drillhole. Overall, core recovery is &gt;95% or that section of the hole is re-drilled.</li> <li>Ply samples are checked for representativeness against a theoretical mass after raw CQ analysis and prior to composite definition.</li> <li>Open hole chip recovery is assessed qualitatively by the rig geologist.</li> </ul>
Logging	<ul style="list-style-type: none"> <li>Core was logged for geology and geotechnical changes, Open hole chip samples were taken every 1m and logged for lithology changes. Quantitative logging for lithology, stratigraphy, texture, and hardness is conducted using standard dictionary definitions. Colour and any additional qualitative comments are also recorded.</li> <li>All holes were logged using a comprehensive suite of down-hole geophysics tools (calliper, gamma, density, neutron, resistivity and sonic), with acoustic scanner/dipmeter (for geotechnical assessment) also run on cored holes.</li> </ul>

Sub-sampling techniques and sample preparation	<ul style="list-style-type: none"> <li>Core sampling was completed at the drill site and based on a set of standard criteria (determined by lithology and structure). Samples were bagged at the drill site and then transported to an external accredited laboratory for analysis as a complete hole batch.</li> <li>All samples are weighed, air-dried, and then re-weighed before being crushed to an assumed 11.2mm top size. A rotary splitter was used to divide the sample into portions available for further CQ analysis.</li> <li>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 geologist.</li> <li>All sample treatment and analysis was conducted according to procedures which adhere to Australian (or International equivalent) standards.</li> </ul>
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>Non-formalised quality assurance/quality control (QA/QC) involving duplicate samples has been completed and all results are assessed via cross-plots and statistics for precision and accuracy.</li> </ul>
Verification of sampling and assaying	<ul style="list-style-type: none"> <li>All CQ sampling and analysis was overseen and checked by other Rio Tinto personnel.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>The MTP topography surface is derived from a computer-based grid file which was updated using drill hole collars – the original provenance of this file is not clear however it has been benchmarked against publically available 5m digital terrain model contours. The digital terrain model was created with a 20m x 20m cell size triangulation at 0.2m decimation.</li> <li>All surveyed coordinates are within Map Grid of Australia 1994 (MGA94) Zone 56 projection using the datum AGD94.</li> <li>Drill hole collars were surveyed post drilling by licensed surveyors.</li> <li>Downhole surveying has been undertaken using downhole verticality and calliper tools since 1992. Some earlier downhole survey work was completed prior to 1992 however the details of these surveys are unclear.</li> </ul>
Data spacing and distribution	<ul style="list-style-type: none"> <li>The majority of drilling on the MTP deposit has been conducted on a 250m square grid. Some structural definition drilling was also completed at 250m and 125m spacings.</li> </ul>
Orientation of data in relation to geological structure	<ul style="list-style-type: none"> <li>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.</li> </ul>
Sample security	<ul style="list-style-type: none"> <li>Core/chip samples were taken at the drill site and then transported daily to the locked on site core shed for storage. At the completion of drilling, CQ samples are transported to the laboratory for testing.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>No external audits have been completed.</li> </ul>



## SECTION 2 REPORTING OF EXPLORATION RESULTS

Criteria	Commentary
Mineral tenement and land tenure status	<ul style="list-style-type: none"> <li>The MTP deposit is 100% owned by Coal &amp; Allied Industries Limited (CNA), resulting in the Rio Tinto Group owning an 80% stake in the project.</li> <li>The project consists of mining leases and authorisations as outlined below (see, Figure 1): <ul style="list-style-type: none"> <li>one mining lease</li> <li>three mining lease applications</li> <li>one prospecting authorisation.</li> </ul> </li> </ul>

**MTP Tenements**  
Location: Muswellbrook  
Council: Muswellbrook

Projection: MGA Z56  
Contour Interval: N/A  
Source: N/A

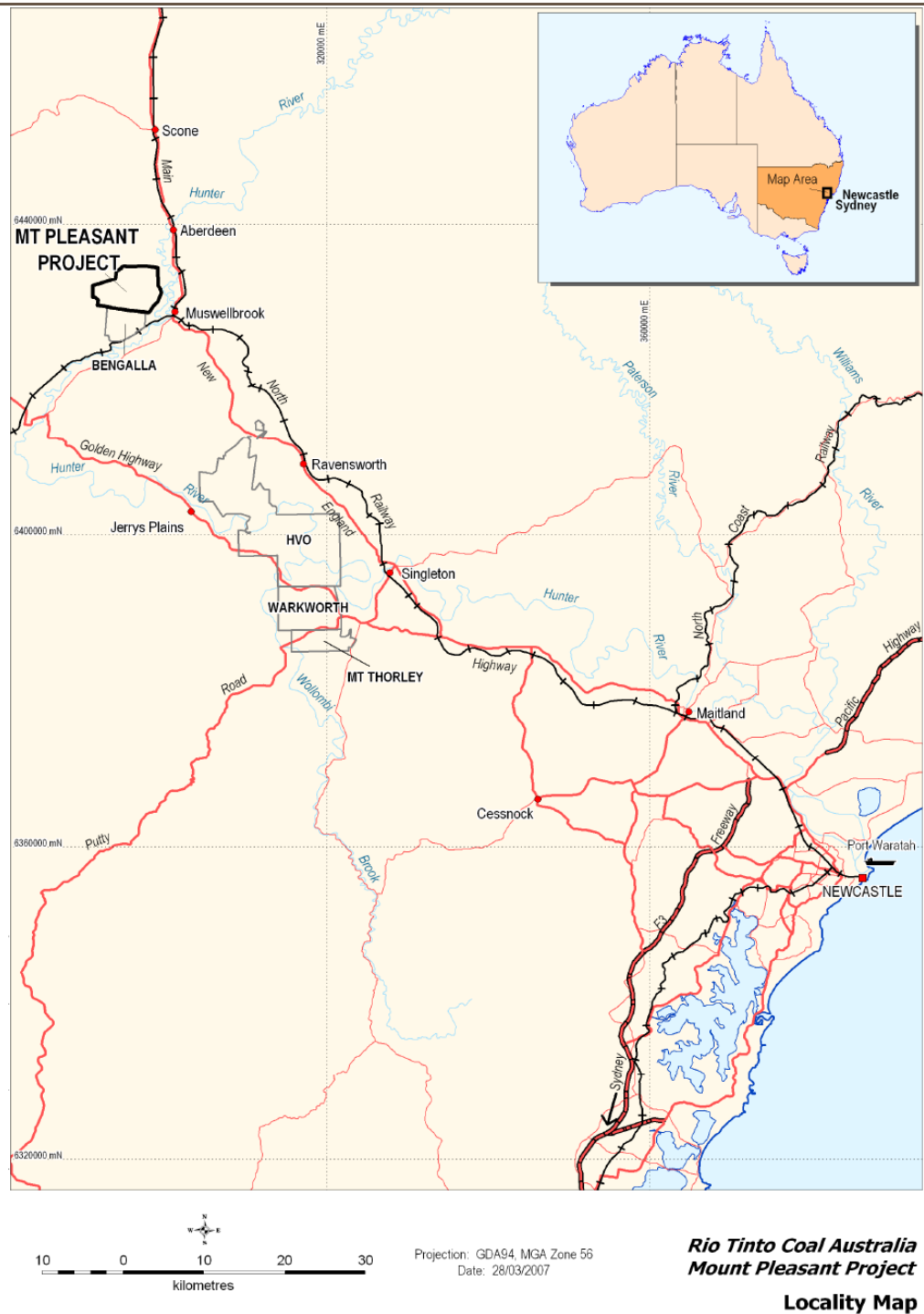
Date: 10/05/13  
Plan By: SC  
Version: 05

Project: MTP  
Layout: A3  
Our Ref: P\_UH\_Tenement  
Summary: 101117.wor

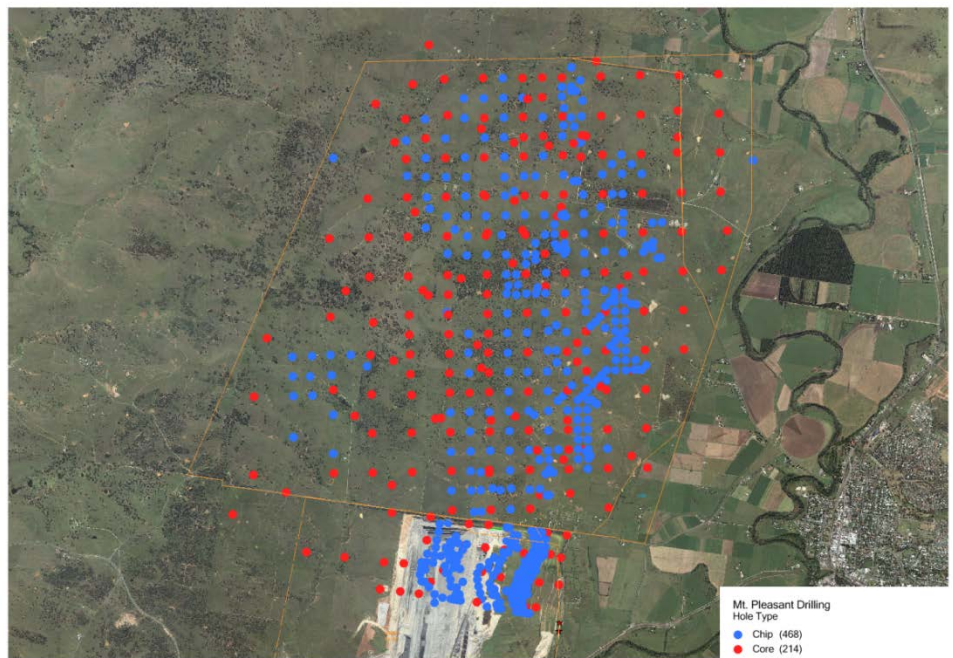
**COAL & ALLIED**  
Coal & Allied - Land & Property Department

Figure 8 Mount Pleasant Project tenements

Exploration done by other parties	<ul style="list-style-type: none"><li>• Prior to the awarding of the Mount Pleasant Tenement to CNA in 1992 the following exploration was conducted:<ul style="list-style-type: none"><li>○ 1890-1930: Kayuga Colliery operated a small underground mine</li><li>○ 1970: Buchanan Borehole Collieries Ltd. drilled 8 holes</li><li>○ 1970-71: Amoco (Australia) Pty Ltd drilled 14 holes (including Bengalla)</li><li>○ 1975: the NSW Department of Mineral Resources commissioned a 26 hole exploration programme</li></ul></li></ul>																								
Geology	<ul style="list-style-type: none"><li>• MTP is located in the Hunter Coalfield in the northern part of the Sydney Basin, which contains numerous important coal producing intervals in the Permian stratigraphy. The Late Permian Wittingham Coal Measures are further subdivided into the Vane (Lower most seams) and Jerrys Plains sub-groups, which host the main coal deposits within the Mount Pleasant tenement. The main rock types of these sub-groups are sandstone, siltstone, and conglomerate, which occur with subordinate coal and tuffaceous claystone.</li></ul>																								
Drill hole information	<ul style="list-style-type: none"><li>• Following is a drilling data summary from Rio Tinto Coal drilling campaigns between 1992 and 2010, inclusive of some Bengalla data:</li></ul> <table><tr><td></td><td>1992</td><td>1993 - 1996</td><td>2003 - 2005</td><td>2006 - 2007</td><td>2010</td></tr><tr><td>Open Holes</td><td>-</td><td>150</td><td>7</td><td>41</td><td>-</td></tr><tr><td>Core Holes</td><td>32</td><td>117</td><td>1</td><td>21</td><td>7</td></tr><tr><td>LD Holes</td><td>7</td><td>15</td><td>-</td><td>-</td><td>-</td></tr></table>		1992	1993 - 1996	2003 - 2005	2006 - 2007	2010	Open Holes	-	150	7	41	-	Core Holes	32	117	1	21	7	LD Holes	7	15	-	-	-
	1992	1993 - 1996	2003 - 2005	2006 - 2007	2010																				
Open Holes	-	150	7	41	-																				
Core Holes	32	117	1	21	7																				
LD Holes	7	15	-	-	-																				
Data aggregation methods	<ul style="list-style-type: none"><li>• Ply samples were combined to create composites (for washability and product coal analyses) representing mineable seam working sections .</li></ul>																								
Relationship between mineralisation widths and intercept lengths	<ul style="list-style-type: none"><li>• Based on the drilling techniques, and stratigraphy, the coal seam intercepts approximate the true vertical thickness of the coal.</li></ul>																								
Diagrams																									

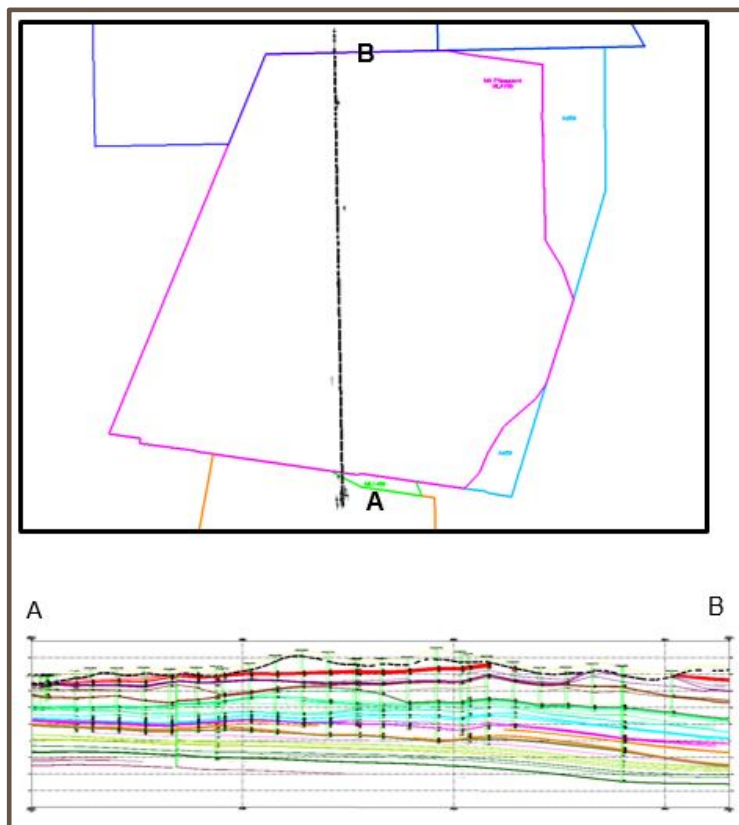


**Figure 9 Mount Pleasant Project location**



*Open holes (blue); cored holes (red)*

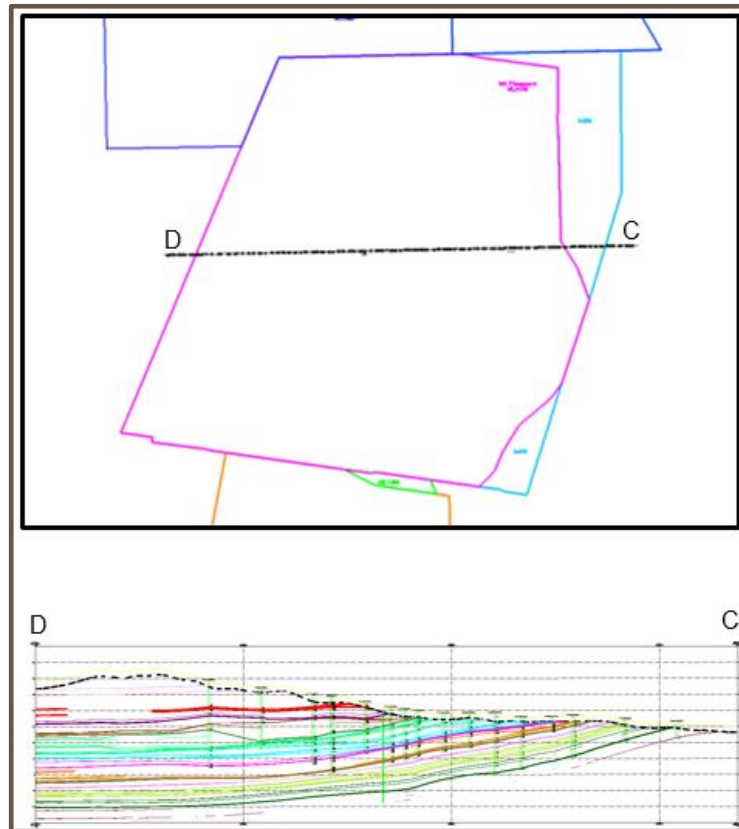
**Figure 10 Schematic drill hole collar locations**





*Shown with 3x vertical*

**Figure 11 Schematic MTP cross-section: north to south**



*Shown with 3x vertical*

**Figure 12 Schematic MTP cross-section: west to east**

Balanced reporting	<ul style="list-style-type: none"> <li>Not applicable. Rio Tinto Coal Australia has not specifically released exploration results for these deposits.</li> </ul>
Other substantive exploration data	<ul style="list-style-type: none"> <li>In addition to drilling, both aerial and high-resolution ground magnetic surveys have been conducted for the tenement. In 1993 ground radar was completed to better delineate dyke structures.</li> </ul>
Further work	<ul style="list-style-type: none"> <li>The MTP Resource is currently at a feasibility study stage, with much of the Resource developed to Measured status. As such, exploratory work for this Resource is not currently being undertaken. However a programme of pre-production drilling is planned pending an investment decision to proceed to mining.</li> </ul>

## SECTION 3 ESTIMATION AND REPORTING OF MINERAL RESOURCES

Criteria	Commentary
Database integrity	<ul style="list-style-type: none"> <li>All drill hole data are securely stored in a database which is duplicated on multiple servers (Bengalla Mine and Singleton) and is backed up daily.</li> </ul>

	<ul style="list-style-type: none"> <li>Data are validated at the drill site and also prior to loading into the database by the responsible geologist.</li> <li>The database contains automated validation processes, during data loading and prevents invalid data loading.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>The Resources Competent Person visited MTP in 2014.</li> </ul>
Geological interpretation	<ul style="list-style-type: none"> <li>The deposit is well known and tabular with all major structures and coal seam continuity (including coal quality) and limits (i.e. LOX, sub-crop and igneous intrusions) defined. Infill drilling, mining exposure and mapping has supported and refined the model. The current interpretation is thus considered robust.</li> </ul>
Dimensions	<ul style="list-style-type: none"> <li>The deposit trends 5km north to south and is 6km in width. The deposit extends to a depth of ~220m below the topographic surface.</li> </ul>
Estimation and modelling techniques	<ul style="list-style-type: none"> <li>Modelling was completed using resource modelling software. For structural modelling a proprietary fine element method (FEM), interpolator is used and for CQ an inverse distance squared interpolator is used. All surfaces and coal qualities are interpolated into grids with 20m × 20m node spacing.</li> <li>The model is of the coal seams only with waste modelled by default. Resource estimates are therefore of the coal seams only and restricted on a whole seam group basis only.</li> <li>Modelling is completed on an iterative basis by checking 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.</li> </ul>
Moisture	<ul style="list-style-type: none"> <li>All tonnages are estimated on an in situ moisture basis, which is determined as air-dried moisture content plus 5%. This figure is based on calculations and assumptions completed during the 2007 feasibility study.</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li>It is assumed that MTP will produce thermal products to sit within Rio Tinto Coal Australia's marketing strategy with assumed 11% product moisture. Air-dried is quoted at a 4.5% moisture basis.</li> <li>A minimum coal thickness of 0.25m and density of 1.8 g/m<sup>3</sup> are applied as a cut-off parameters for reporting coal.</li> <li>Economic resources are defined by a "break even" (\$0 margin) Lerchs-Grossman optimised shell for opencast coal – this effectively sets the maximum depth or lowermost seam considered.</li> </ul>
Mining factors or assumptions	<ul style="list-style-type: none"> <li>Development of this Mineral Resource estimate assumes mining using standard Rio Tinto Coal Australia equipment. The assumed mining method is overburden removal via draglines, and conventional truck and shovel open-cut coal mining.</li> </ul> <p>Mining practices utilise detailed extraction plans to effectively manage quality control. These extraction plans are generated from real time blast hole drill compliance monitoring, in pit visual inspections and survey monitoring and control.</p>
Metallurgical factors or assumptions	<ul style="list-style-type: none"> <li>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 MTP coal.</li> </ul>
Environmental factors or	<ul style="list-style-type: none"> <li>Rio Tinto Coal Australia has an extensive environmental and heritage approval and compliance process. No issues are expected that would affect the Mineral</li> </ul>



assumptions	Resource estimate.
Bulk density	<ul style="list-style-type: none"> <li>Tonnages have been calculated using apparent relative density (ARD) and air-dried moisture.</li> <li>Relationships between apparent relative density (ARD) and relative density (RD) were determined and used to populate the calculated RD for all ARD values: <ul style="list-style-type: none"> <li>converting ARD to RD</li> <li><math>RD_{calc} = 1.0016 \times ARD + 0.0645</math>, where <math>R^2 = 0.956</math></li> </ul> </li> <li>The in situ relative density (i.e. the density of materials at an in situ moisture basis) is calculated using the Preston and Sanders equation: <math display="block">RD2 = [RD1 \times (100 - M1)] / [100 + RD1 \times (M2 - M1) - M2]</math> Where RD1 is true RD (ad), M1 is moisture (ad) and M2 is the in situ moisture (M1 + 4). </li> </ul>
Classification	<ul style="list-style-type: none"> <li>The classification of the Mineral Resources into varying confidence categories is based on a standardised process of utilising points of observation (PoO). Drill holes are assessed according to their reliability and value in estimation. The PoOs are used to categorise structure and quality continuity.</li> <li>Radii of influence are then plotted around PoO maps for structure and quality. The radii of influence were determined by consideration of the observed variability in structure and CQ for seam groups, and by examining histograms and statistics of ash content of seam groups. As there are many plies at Mount Pleasant, seam groups (equivalent to the seam names) were used for categorisation.</li> <li>Areas of confidence (low, medium, high) are produced from these plots (structure, CQ for each seam group) and finally these are combined to produce areas of Measured, Indicated and Inferred which are used to subdivide the Resource tonnage estimates.</li> <li>In summary structural radii range 175-225m for high confidence, 350-450m for medium and 1,050-1,350m for low; and, for CQ 350-450m radii for high, 700-900m for medium and 2,800-3,600m for low confidence respectively. The ranges reflect variability within the twelve seam groups modelled at Mount Pleasant.</li> <li>The Competent Person is satisfied that the stated Mineral Resource classification reflects the geological controls interpreted and the estimation constraints of the deposits.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>The estimation was carried out by Rio Tinto personnel and external consultants and an informal audit had been conducted by Rio Tinto personnel over the whole process.</li> </ul>
Discussion of relative accuracy/ confidence	<ul style="list-style-type: none"> <li>Rio Tinto Coal Australia operate multiple mines in New South Wales (NSW) and Queensland (QLD). The Mineral Resource data collection and estimation techniques used for the MTP deposit are consistent with those applied at other deposits which are being mined.</li> <li>Accuracy and confidence in the Mineral Resource estimation has been accepted by the Competent Person.</li> </ul>

## SECTION 4 ESTIMATION AND REPORTING OF ORE RESERVES

Criteria	Commentary
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Mineral Resource estimate for conversion to Ore Reserves	<ul style="list-style-type: none"> <li>• A three dimensional gridded Resource model of topography, structure and quality is used for in situ Resource definition.</li> <li>• Mine design strips and 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 or seam aggregations, mining methods and associated loss and dilution impacts. The mine schedule database is used as the basis for Ore Reserves reporting.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>• The Reserves Competent Person undertook a field visit of MTP in 2014.</li> </ul>
Study status	<ul style="list-style-type: none"> <li>• MTP has been studied to Feasibility Study level in 2011. During 2014 a study refresh has been carried out, in order to test additional mine and infrastructure options under recent market conditions. The reportable Ore Reserve is based on this current 2014 study which has identified a mine plan that is technically achievable and economically viable, and considers appropriate Modifying Factors.</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li>• The 2014 study included a pit optimisation study to delineate the economic pit limits for the MTP mine plan. The study used a range of estimates for operating costs and future coal prices to identify a robust mine plan.</li> <li>• 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.</li> <li>• A discounted cashflow analysis is conducted to re-assess under the latest economic assumptions the potential Reserves that remain net cashflow positive.</li> </ul>
Mining factors or assumptions	<ul style="list-style-type: none"> <li>• The 2014 study proposes to utilise dragline, as well as truck and shovel, for waste movement while coal is to be loaded using a combination of loaders and excavators. Haulage to the run of mine (ROM) hopper would be by rear dump trucks. The operations would be supported by additional equipment including dozers, graders and water carts.</li> <li>• All pit end-walls have benched and battered designs based on typical Rio Tinto Coal Australia practice with allowances made for increasing depth of mining. The design provides for mining roadways and catch benches.</li> <li>• Working section or seam aggregation logic pre-determines what is defined as mineable coal by applying working section tests based on minimum practical coal thickness (typically 30cms), and a maximum raw ash of 51.6% on an air-dried basis.</li> <li>• Coal loss and dilution factors are also applied. Typical assumed roof and floor coal loss thickness ranges from 2cm–10cm. Typical roof and floor waste dilution thickness ranges from 2cm–6cm.</li> <li>• Any Inferred Resources included in the mine plan are not considered to be Reserves. Neither are they reported in JORC or Securities and Exchange Commission compliant Reserve statements.</li> <li>• MTP has only very limited (&lt;2%) Inferred coal within the mine plan.</li> </ul>
Metallurgical factors or assumptions	<ul style="list-style-type: none"> <li>• MTP proposes to wash the ROM coal using conventional techniques to produce a final saleable product. Rio Tinto Coal Australia has extensive local experience within the region, with operating mines at Bengalla, Hunter Valley Operations, and Mount Thorley Warkworth.</li> </ul>

	<ul style="list-style-type: none"> <li>• The processes assumed for MTP are standard for the coal industry and so are well tested technologies.</li> <li>• All samples are wash/cut-point tested and so the representativeness of test work undertaken is implicit in the Resource classification status.</li> <li>• In-seam dilution is included in sample testing.</li> <li>• Ore Reserve estimation is based on existing product specifications.</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• MTP has a current 21 year development consent that allows for coal mining and processing operations on site. This development consent permits operations until 2020. All necessary future government approvals are expected to be received within the timeframes anticipated in the project plan.</li> <li>• Coarse rejects are consented to be stored within the mines overburden dumps, while the fines coal washery rejects are to be stored within dedicated tailings dams. Rejects material and completed tailings dams will be covered by inert waste rock material, in line with consent conditions.</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>• The 2011 feasibility study plus current 2014 study has examined the infrastructure requirements for MTP. The site is located in close proximity to the town of Muswellbrook, and is immediately adjacent to the operational Bengalla Mine. The availability of land for plant development, power, water, transportation, labour, and accommodation has been assessed as part of the Feasibility Study.</li> </ul>
Costs	<ul style="list-style-type: none"> <li>• The 2011 Feasibility study capital estimates were prepared consistent with Rio Tinto study guidance. The estimates were based on material take offs and generally three quoted estimates for each portion of the estimate. The accuracy of the estimate is in the range -10% to +15% at a 90% confidence level. The current study has refreshed the cost estimates based on current market information.</li> <li>• The operating cost estimate supporting the current study was generated based on a combination of input costs supplied by Rio Tinto Economics and Markets Team (RTEM) benchmarked costs derived from Rio Tinto's other operating mines located in the Hunter Valley.</li> <li>• Commodity prices have been supplied by RTEM, based on expected demand, and current supply, known expansions, and expected incentivised supply.</li> <li>• Exchange rates have been supplied by RTEM.</li> <li>• Transport charges have been obtained from Rio Tinto coal chain team based on existing contracts and expected tonnages.</li> <li>• Allowances have been made for NSW State Government royalties based on current legislation.</li> </ul>
Revenue factors	<ul style="list-style-type: none"> <li>• The MTP deposit has been valued assuming all coal is sold out of the Port of Newcastle as an export thermal coal, using an energy adjusted price formula.</li> <li>• Rio Tinto applies a common process to the generation of commodity prices 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.</li> </ul>
Market assessment	<ul style="list-style-type: none"> <li>• The supply and demand situation for coal is affected by a wide range of factors,</li> </ul>

	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.
Economic	<ul style="list-style-type: none"> <li>Economic inputs such as foreign exchange rates, carbon pricing, and inflation rates are generated internally at Rio Tinto. The detail of this process is commercially sensitive and is not disclosed.</li> </ul>
Social	<ul style="list-style-type: none"> <li>There are no Native Title Claims over MTP. No Reserves have been omitted on this basis.</li> <li>Rio Tinto Coal Australia established the Upper Hunter Valley Cultural Heritage Working Group as a consultation and management process to negotiate cultural heritage issues with local Aboriginal communities. As part of releasing a ground disturbance permit on site, authority must be gained to destroy/remove sites of cultural interest. This involves archaeological mapping and removal of artefacts prior to ground disturbance.</li> <li>There are no European Cultural Heritage sites requiring preservation at MTP.</li> </ul>
Other	<ul style="list-style-type: none"> <li>There are no material naturally occurring risks expected to have any material impact on MTP.</li> <li>MTP has entered into an agreement with the Bengalla Mining Company to support management of interface issues between the two operations. The agreement deals with land and tenement matters and infrastructure matters.</li> <li>All major approvals are in place for MTP including NSW Government development consent, mining lease and Federal Environmental Protection and Biodiversity (EPBC) approval. The NSW Government environmental protection licence (EPL) is pending and is expected to be granted prior to the project proceeding into the construction phase.</li> </ul>
Classification	<ul style="list-style-type: none"> <li>100% of the Ore Reserves are classified as Probable Reserves.</li> <li>The Competent Person is satisfied that the stated Ore Reserve classification is appropriate for the MTP deposit.</li> <li>Approximately 65% of Probable Ore Reserves have been derived from Measured Mineral Resources.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>No external audits have been performed.</li> <li>Internal Rio Tinto Coal Australia peer review processes have been completed. These reviews concluded that the fundamental data collection techniques are appropriate.</li> </ul>
Discussion of relative accuracy/ confidence	<ul style="list-style-type: none"> <li>Rio Tinto Coal Australia operates multiple mines in NSW and QLD. The Mineral Resource data collection and estimation techniques used for the MTP deposit are consistent with those applied at other deposits which are being mined.</li> <li>Accuracy and confidence of the Mineral Resource estimate has been accepted by the Competent Person.</li> </ul>