

### **Increase to Mount Thorley Warkworth Mineral Resources**

**24 January 2017**

Rio Tinto today announces an increase of Rio Tinto Coal Australia's managed thermal coal resources at Mount Thorley Warkworth in New South Wales, Australia, compared to the previous estimates reported in Rio Tinto's 2015 Annual Report. The announcement of this increase is made simultaneously with the announcement by Rio Tinto that it has entered into a binding agreement for the sale of its Australian wholly-owned subsidiary Coal & Allied Industries Limited, which in turn holds an 80 per cent interest in the Mt Thorley mine and a 55.6 per cent interest in the Warkworth mine (as well as a 67.6 per cent interest in the Hunter Valley Operations mine and a 36.5 per cent interest in a coal export terminal at the Port of Newcastle).

The updated Mineral Resources are reported in accordance with the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, 2012 (JORC Code) and ASX Listing Rules. As such, the reported increases relating to Mount Thorley Warkworth require the additional supporting information set out in this release and its appendix.

Mount Thorley Mineral Resources exclusive of Ore Reserves have increased by 208 Mt, from 114 Mt to 322 Mt.

Warkworth Mineral Resources exclusive of Ore Reserves have increased by 353 Mt, from 613 Mt to 966 Mt.

This increase in Mineral Resources reflects a continuation of work on Rio Tinto Coal Australia deposits previously announced on 28 November 2014 and 3 March 2016. The updates are based on a rigorous examination of leases that included a reinterpretation of the geological model, employment of new datasets and adopting improved Mineral Resource estimation methods.

Minerals Resources are quoted on a 100 per cent basis. Rio Tinto's interest as at 24 January 2017 is listed in the schedule (*Figure 1*).

**Figure 1: Schedule – MTW Mineral Resources**

	Likely mining method (a)	Coal type (b)	Coal resources at end 2016			Total resources 2016 compared with 2015				Rio Tinto interest %
			Measured	Indicated	Inferred					
						2016	2015			
COAL (c)			millions of tonnes	millions of tonnes	millions of tonnes	millions of tonnes	millions of tonnes			
Rio Tinto Coal Australia										
Mount Thorley Operations (e) (d)	O/C	SC + MC	39	226	57	322	114			80.0
Warkworth (f) (d)	O/C + U/G	SC + MC	141	307	517	966	613			55.6

### Notes

(a) Likely mining method: O/P = open pit; O/C = open cut; U/G = underground; D/O = dredging operation.

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

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

(d) As a result of a restructure of the Coal & Allied group, which completed on 3 February 2016, Rio Tinto obtained 100 per cent ownership of Coal & Allied and Mitsubishi obtained a direct interest of 32.4 per cent in the newly created Hunter Valley Operations joint venture, which owns the Hunter Valley Operations mine. Updated ownership reflects these changes.

(e) Mount Thorley Operations Resource tonnes have increased as a result of updated geological models and reclassification. All previously reported underground Resources have been reclassified as open cut.

(f) Warkworth Resource tonnes have increased as a result of updated geological models and reclassification.

### **Summary of information to support the Mineral Resources estimates**

Mineral Resource Estimates for Mount Thorley Warkworth are supported by the information set out in the appendix to this release in accordance with JORC Code Table 1 (Sections 1 to 3), and also located at [www.riotinto.com/JORC](http://www.riotinto.com/JORC).

An increase in Mount Thorley Warkworth Mineral Resources follows the completion of strategic optimization studies for opencast deposits. Geology models supporting the Mineral Resource increase were updated to incorporate new and legacy drilling data, leading to revised interpretations of coal seam structure, yield and quality.

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

Mount Thorley Warkworth (MTW) is an integrated operation comprising two open cut mines located adjacent to each other, 15 kilometres south-west of Singleton within the Sydney Basin of New South Wales (NSW).

Rio Tinto Coal Australia (RTCA) has constructed a single geology model underlying the MTW leases. The geology model contains comprehensive datasets and well defined interpretations for coal quality and geological structure, including coal seam continuity and faulting. Coal seam sub-crops, limits of oxidation and igneous intrusions are well defined. The geology model is supported by surface outcrop mapping, drilling and airborne geophysical data. A total of 2,670 holes are drilled into the MTW deposit.

#### Drilling techniques

Open hole drilling was the preferred method for delineating coal and waste structure. Core drilling, including 4C (100mm), HQ3 and PQ3 diameters was also completed for all deposits for the purpose of coal quality, geotechnical and gas characterization. Large diameter 8C (200mm) holes have also been drilled for the purpose of characterizing coal quality and to support sizing studies. Downhole geophysical logging was completed for the majority of drill holes in all deposits, 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

Sampling of drill core was completed 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 a nominal size. A rotary splitter was used to divide the sample into portions available for further analysis. For all deposits 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

RTCA employs a standard methodology for classifying Mineral Resources into inferred, measured and indicated confidence categories. 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 separately 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 classifying Mineral Resource tonnage estimates.

A range of drill hole spacing limits were identified to reflect the inherent variability of each seam group modelled within each structural domain of the deposit. Structure classifications correspond with drill hole spacing distances of 150m to 250m for high, 300m to 500m for medium and 1,200m to 2,000m for low confidence limits. Coal quality classifications correspond with drill hole spacing distances of 300m to 500m for high, 600m to 1,000m for medium and 1,800m to 3,000m for low confidence limits.

## Estimation methodology

Geology models were constructed employing coal industry standard software. For structural modelling a Finite Element Method (FEM) interpolator was employed. For coal quality modelling an inverse distance squared interpolator was employed. All surfaces and coal qualities were interpolated into grids with 20m2 to 50 m2 node spacing. 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. For all deposits a volume / tonnage check was completed with predecessor models to provide final validation.

## Reasonable prospects for eventual economic extraction

RTCA employs a standard approach to identify Mineral Resource volumes with reasonable prospects for eventual economic extraction.

For opencast deposits a minimum coal thickness of 0.25m and density of 1.8 g/m3 were applied as cut-off parameters for reporting Mineral Resources. Opencast resource volumes correspond with the limits of a “break even” (\$0 margin) Lerchs-Grossman optimised shell. This method identifies the maximum depth or lowermost seam to be considered.

For underground resources a minimum coal thickness of 1.8m and certain depth limits provide cut-off parameters for reporting Mineral Resources. Underground Mineral Resources correspond with practically mineable coal seam volumes employing longwall or board and pillar methods. Underground Mineral Resources must support longwall mining layouts with a break-even” or better economic result, including reasonable development capital costs.

## **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.

Dr Ruddock has 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 consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

## Contacts

media.enquiries@riotinto.com

www.riotinto.com



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### Media Relations, EMEA/Americas

Ilftud Harri

T +44 20 7781 1152

M +44 7920 503 600

David Outhwaite

T +44 20 7781 1623

M +44 7787 597 493

David Luff

T +44 20 7781 1177

M +44 7780 226 422

### Investor Relations, EMEA/Americas

John Smelt

T +44 20 7781 1654

M +44 7879 642 675

David Ovington

T +44 20 7781 2051

M +44 7920 010 978

Nick Parkinson

T +44 20 7781 1552

M +44 7810 657 556

### Media Relations, Australia/Asia

Ben Mitchell

T +61 3 9283 3620

M +61 419 850 212

Bruce Tobin

T +61 3 9283 3612

M +61 419 103 454

Matthew Klar

T +61 7 3625 4244

M +61 457 525 578

### Investor Relations, Australia/Asia

Natalie Worley

T +61 3 9283 3063

M +61 409 210 462

Rachel Storrs

T +61 3 9283 3628

M +61 417 401 018

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### Rio Tinto plc

6 St James's Square  
London SW1Y 4AD  
United Kingdom

T +44 20 7781 2000

Registered in England  
No. 719885

### Rio Tinto Limited

120 Collins Street  
Melbourne 3000  
Australia

T +61 3 9283 3333

Registered in Australia  
ABN 96 004 458 404

## Appendix - Mount Thorley Warkworth Table 1

The following table provides a summary of important assessment and reporting criteria used at Mt Thorley Warkworth (MTW) for the reporting of exploration results and coal 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 2,670 drill holes (280,964m) support the Resource estimate. Cored drilling represents 45% of the total metres and open hole drilling 55%. The drill holes are up to 725m in length and average 92m. The drill holes were all nominally recorded as vertical. Boreholes which deviated by more than 5% were to be re-drilled by the contractor.</li> <li>Coring has predominantly been done using a HQ3-sized (63mm) and open hole drilling to an equivalent hole diameter size. In addition a limited number of large diameter (LD) holes have been drilled: seven holes at 150mm (6") and 49 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 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 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 both a core table (0.5m increment) and a 5m tray basis. Chips are photographed as laid out by 1m intervals.</li> <li>All holes are logged using a comprehensive suite of downhole geophysics tools (caliper, 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>Prior to May 2013 samples were analysed by Australian Laboratory Services Steel River, Newcastle laboratory. After this date analyses were completed at the Brendale laboratory run by Bureau Veritas.</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 are completed and, in addition, Rio Tinto Coal Australia checks laboratory round robin and basic reproducibility tests provided by Bureau Veritas. All results are assessed via cross-plots and statistics for precision and accuracy.</li> </ul>
Verification of	<ul style="list-style-type: none"> <li>All CQ sampling and analysis is overseen and checked by other Rio Tinto personnel.</li> </ul>

sampling and analysis	<ul style="list-style-type: none"> <li>Data transfer from drilling is covered by an agreed protocol. This system documents primary assaying data, data entry procedures, data verification, and data storage (physical and electronic) into ABB/Mincom's geological database software.</li> </ul>
Location of data points	<ul style="list-style-type: none"> <li>The topographic surface is derived from a combination of 2m and 5m contour data digitised from topographic maps and 10m digitised data from the Bulga 1<sup>st</sup> edition topographic map covering the mined areas. Drill hole collars and mine survey data were also used. The digital terrain model was created with a 20m × 20m cell size triangulation at 0.2m decimation.</li> <li>All surveyed coordinates are within Map Grid of Australia 1994 MGA Zone 56.</li> <li>Drill hole collars were surveyed post drilling by licensed surveyors using a differential global positioning system with an accuracy of ±10mm.</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 approximate equilateral triangle grid of 250m or less. For open holes spacing is on a 125m 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 MTW core shed for storage. Once the hole has been completed the samples are stored in a refrigerated unit prior to being transported to the laboratory via a dedicated courier service.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>MTW has had one audit completed in the past five years. The audit was conducted in March 2010 by the Xstrat Group (report: Resources and Reserves Internal Audit Report Executive Summary Mt Thorley Warkworth). 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>MTW is an amalgamation of two previously independent mines – Mt Thorley Operations and Warkworth Mining Limited. Each mine was developed at approximately the same time and combined by Coal &amp; Allied Limited (CNA) in 2004.</li> <li>MTW is operated by CNA on behalf of the joint venture (JV) participants. There are two JV partnerships – one for each of the formerly separate operations. Participants in the JVs are outlined below.</li> <li>Mount Thorley Operations (MTO) <ul style="list-style-type: none"> <li>Mount Thorley Operations Pty Ltd (share: 80%)</li> <li>POSCO Australia Pty Ltd (share: 20%).</li> </ul> </li> <li>Warkworth Mining Limited (WML): <ul style="list-style-type: none"> <li>CNA Resources Ltd (share: 28.750%)</li> <li>CNA Warkworth Australasia Pty Ltd (share: 26.824%)</li> <li>Mitsubishi Development Pty Ltd (share: 28.898%)</li> <li>Mitsubishi Materials (Australia) Pty Ltd (share: 6.000%)</li> <li>Nippon Steel &amp; Sumitomo Metal Australia Pty Ltd (share: 9.528%).</li> </ul> </li> <li>MTW contains numerous leases and licences including: <ul style="list-style-type: none"> <li>one consolidated coal lease covering 4192ha</li> <li>one coal lease covering 1992ha</li> <li>one exploration licence covering 1988ha</li> <li>three mining leases covering 29ha</li> <li>two mining lease applications covering 1370ha</li> </ul> </li> </ul>



- All leases containing Resources are in good Standing.

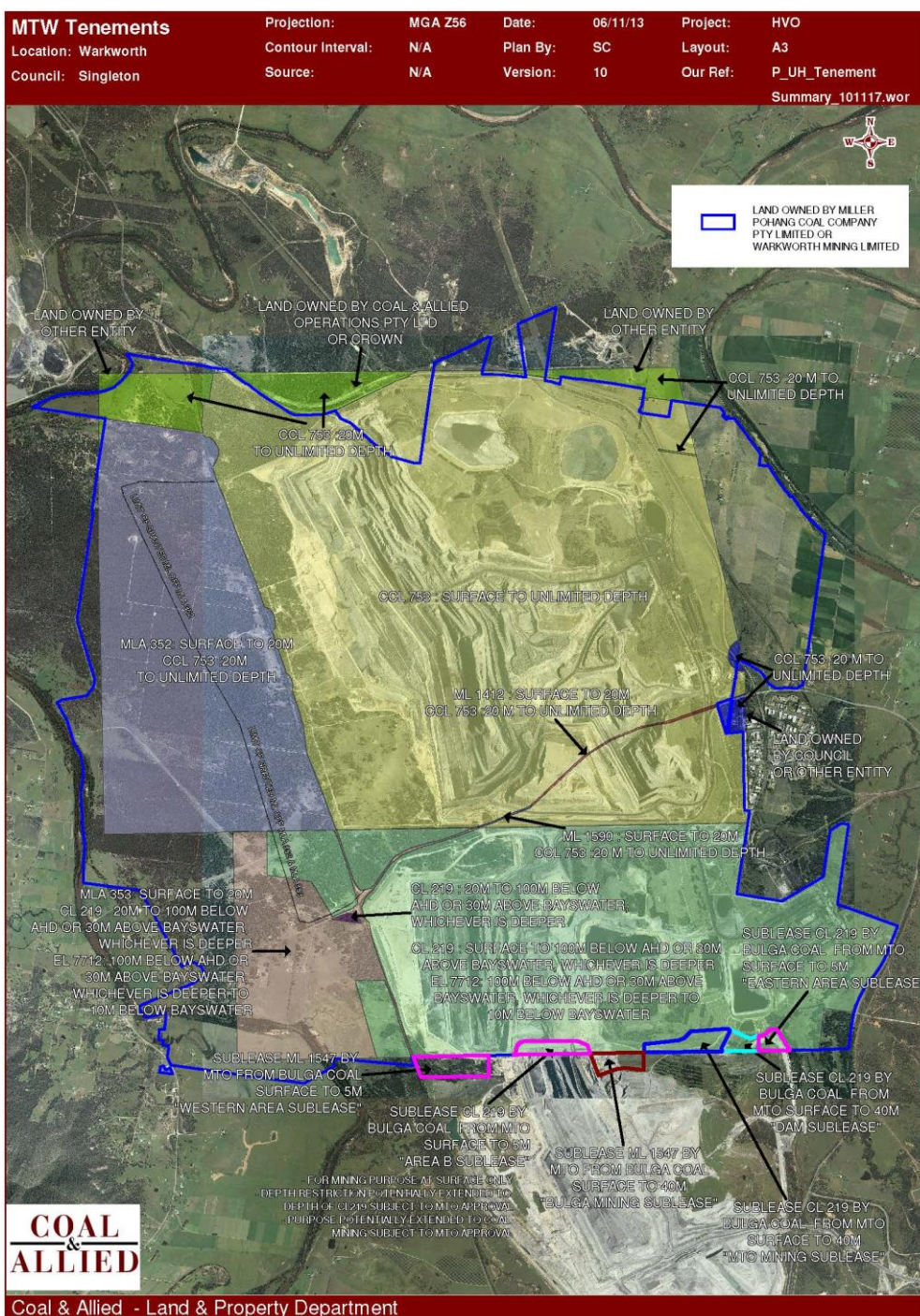


Figure 1: MTW mining and exploration titles

Exploration done by other parties

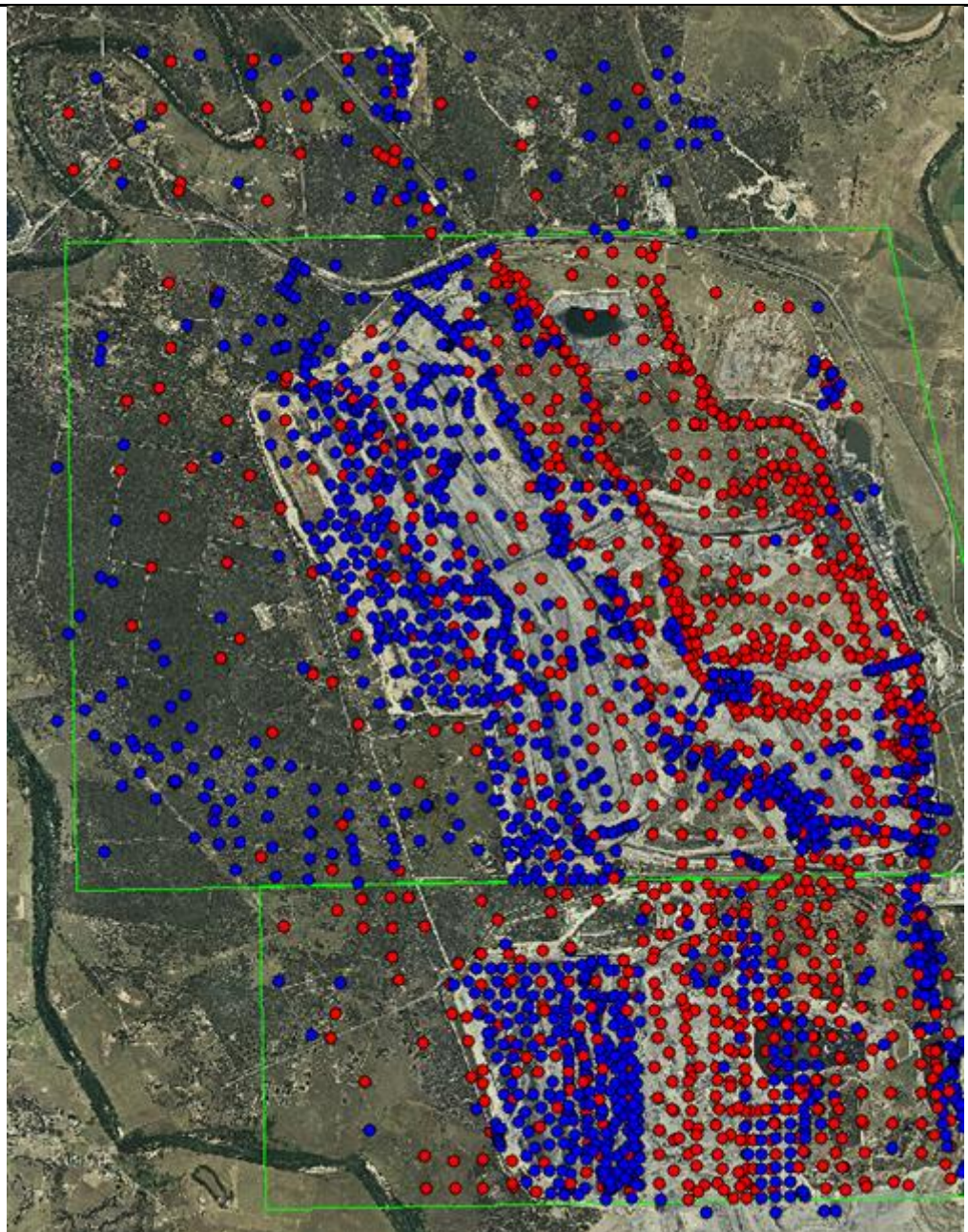
- 1949–1950: Newly formed Joint Coal Board commence drilling shallow percussion boreholes (McMenamins and JCB Warkworth series).
- 1960s: Clutha Bargo explored the Whybrow Seam for coking coal potential.
- Early 1970s: Armco conducted diamond drilling in the Bulga area.
- 1970–1975: Department of Mines conducts fully cored hole drilling programme (DM Warkworth and DM Doyles Creek series).
- 1976: Warkworth Consortium is formed (later established as WML) and awarded mining bid for Warkworth area. Commenced exploration programme with 12 rigs drilling fully cored, HQ-size holes and large diameter (LD) core drilling in selected seams.
- 1976: Drilling programme started at Mt Thorley site – similar to Warkworth drilling programme. Main concentration of drilling was in the shallower, eastern parts of the lease.



	<ul style="list-style-type: none"><li>1980s &amp; 990s: Main focus at Warkworth was open-hole drilling. Mt Thorley increased open holing with production, and a concerted effort at core drilling during the 1990s.</li><li>2002–2005: Little drilling was undertaken.</li><li>2006–2014: Pre-production and further exploration drilling was undertaken. Focus was on: improving borehole data density, testing in situ gas content, provide data for underground Resources, testing the geology of Abbey Green, and extending pre-production drilling 3yrs ahead of mining (MTO and WML).</li><li>Drilling completed on both sites has been combined into a single geological database.</li></ul>																																										
Geology	<ul style="list-style-type: none"><li>MTW 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 of the Vane subgroup. The main rock types of this subgroup include 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 MTW):<table><tr><th></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><th>2015</th><th>2016</th></tr><tr><th>Open holes</th><td>35</td><td>11</td><td>71</td><td>75</td><td>23</td><td>62</td><td>103</td><td>39</td><td>45</td><td>6</td><td>28</td><td>5</td><td>29</td></tr><tr><th>Cored holes</th><td>7</td><td>1</td><td>6</td><td>19</td><td>18</td><td>17</td><td>24</td><td>47</td><td>44</td><td>31</td><td>13</td><td>3</td><td>13</td></tr></table></li><li>Since the previous Mineral Resources upgrade in 2012 there have been an additional 464 drillholes added due to new drilling or database updates.</li></ul>		2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Open holes	35	11	71	75	23	62	103	39	45	6	28	5	29	Cored holes	7	1	6	19	18	17	24	47	44	31	13	3	13
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016																														
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Cored holes	7	1	6	19	18	17	24	47	44	31	13	3	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 drilling techniques and stratigraphy, the coal seam intercepts approximate the true coal thickness.</li></ul>																																										
Diagrams																																											



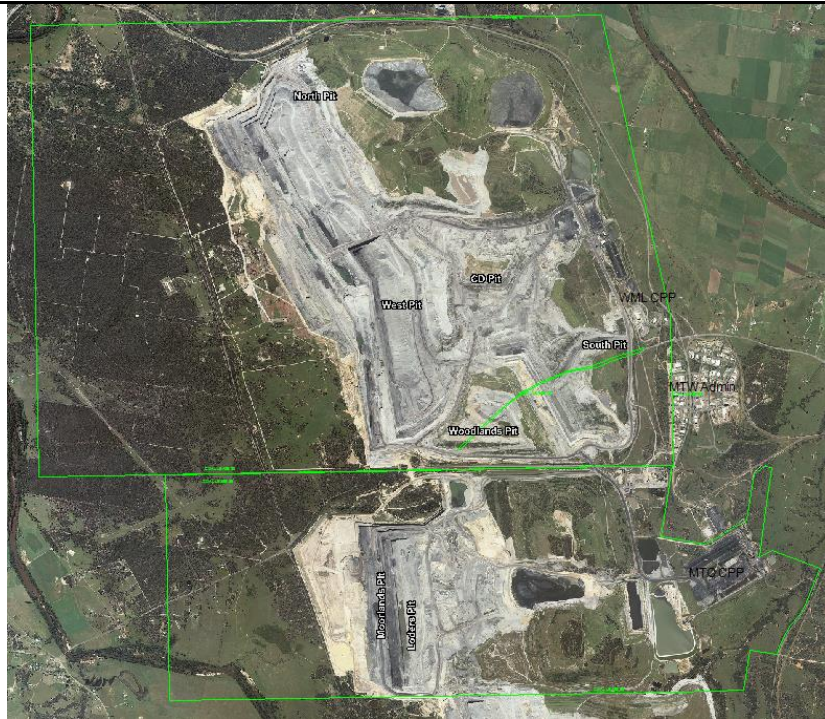
Figure 2: MTW location



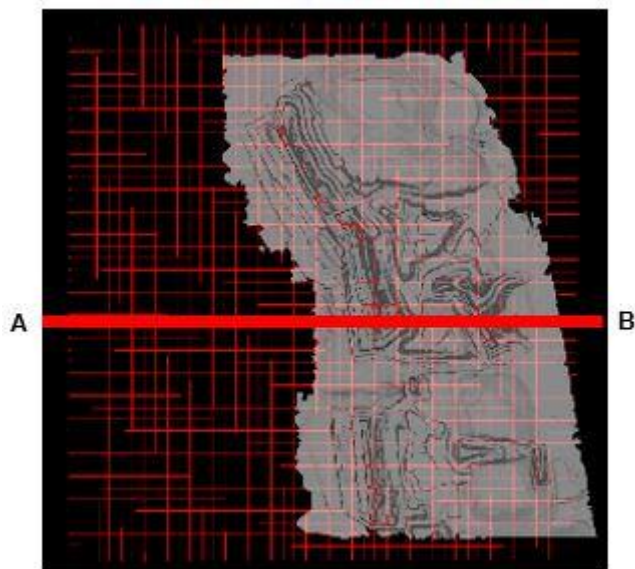
*Open holes (blue); cored holes (red)*

**Figure 3: Drill collar locations**

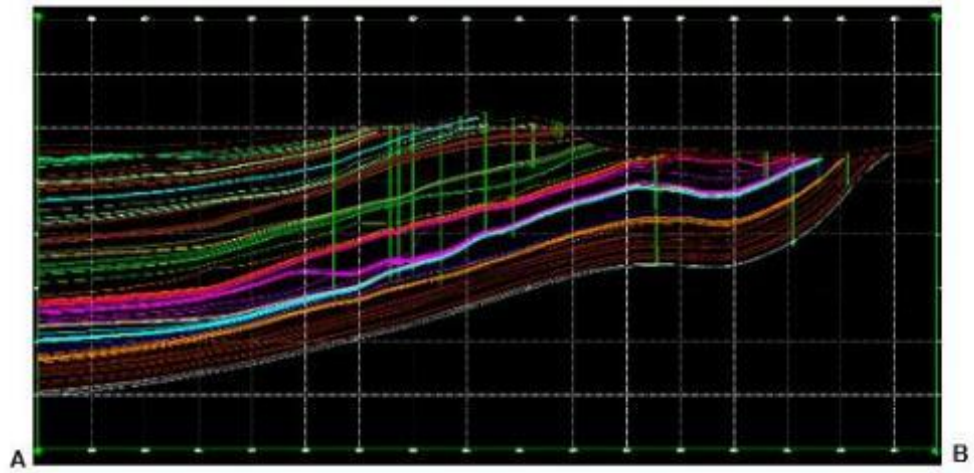




**Figure 4: MTW open-cut operations**

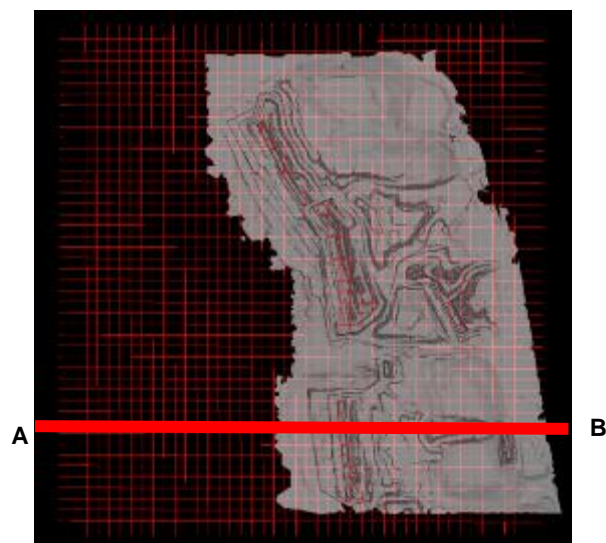


**Figure 5 Warkworth mining line of cross-section**

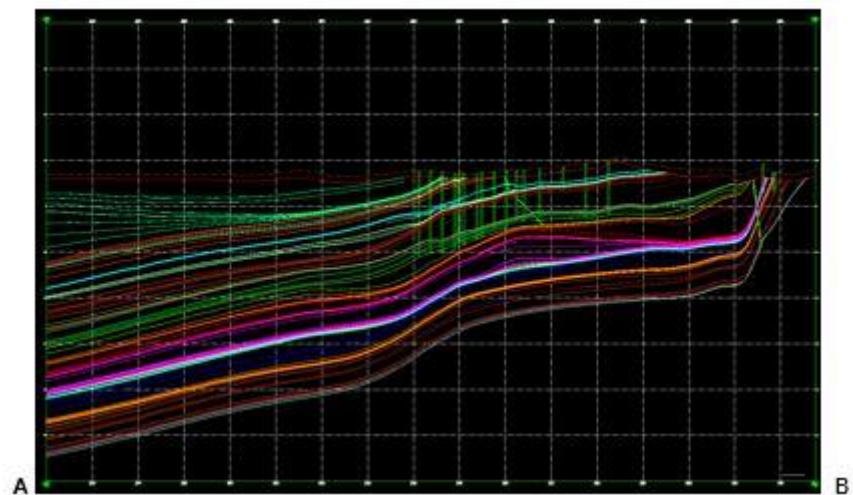


*Cross-section A-B is west to east*

**Figure 6 Warkworth mining lease cross-section**



**Figure 7 Mount Thorley operations line of cross section**



*Cross-section A-B is west to east*

**Figure 8 Mount Thorley operations cross-section**



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 and 2D seismic surveys have been completed to identify faults, dykes, and alluvial limits.</li> </ul>
Further work	<ul style="list-style-type: none"> <li>Both pre-production drilling and strategic brownfields drilling is ongoing, and analytical (CQ, geotechnical, and gas) results will be ongoing.</li> <li>Brownfields exploration included the MTW underground conceptual study in 2013-14. This covered the areas of the present open-cut pits and to the western extents of the licences shown in Figure 4: <i>MTW open-cut operations</i>.</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 is securely stored in a database which is duplicated on multiple servers (MTW and Brisbane) and is backed up daily.</li> <li>Data is 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 which are activated during data loading and prevent un-validated data being loaded.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>The Resources Competent Person visited MTW in 2016.</li> </ul>
Geological interpretation	<ul style="list-style-type: none"> <li>The deposit is well known and tabular (layer-cake) with all major structures defined. Infill drilling, mining exposure and mapping has 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 8km northwest to southeast and is 8.5km in width. The deposit extends to a depth of 460m below the topographic surface.</li> </ul>
Estimation and modelling techniques	<ul style="list-style-type: none"> <li>Modelling was undertaken 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 consists 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 with checking of cross sections and contours of structural and CQ attributes. Database values are posted on contours as a further check. A volume/tonnage check between the model and its predecessor is completed as a final validation.</li> <li>The underground estimates for the Vane sub-group are based on a separate model which spans MTW and HVO south of the Hunter River and directly adjacent to the north.</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%. This offset was derived by comparing the difference between the average total moisture content of shipments of coal that have by-passed the coal plant and the average air-dried moisture content of that coal.</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li>Nominally coal is washed to produce an export thermal product (11%–15% air-dried ash), a domestic thermal product (25% air-dried ash) and a semi-soft coking coal product at 9.0% 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 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. 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 pit 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> <li>Conceptual underground mining will be by longwall methods.</li> </ul>
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 MTW coal.</li> </ul>
Environmental factors or assumptions	<ul style="list-style-type: none"> <li>Environmental factors or assumptions are not applied to the estimate of Mineral Resources contained in MTW leases and tenements. Environmental factors or assumptions are subsequently applied to the estimate of Ore Reserves.</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 display="block">RD(ad) = 1.0003 \times ARD \ 1.0645, \text{ and } ARD = 1.0045 \times RD \ 0.9316.</math> </li> <li>The in situ relative density (i.e. the density of materials at an in situ moisture basis) was calculated using the Preston and Sanders equation:  <math display="block">RD2=[RD1*(100-M1)]/[100+RD1*(M2-M1)-M2]</math> <p><i>Where RD1 is true RD (ad), M1 is moisture (ad) and M2 is the in situ moisture.(M1 +4)</i></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) (i.e. drill holes) according to their reliability and value in estimation. The PoO are used to categorise the continuity of both structure and quality.</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 perceived and 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 MTW, 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 these are finally combined to delineate areas of Measured, Indicated and Inferred classification which are used to subdivide the Resource tonnage estimates.</li> <li>In summary structural radii range from 150-250m for high confidence, 300-500m for medium and 1,200-2,000m for low; and, for CQ 300-500m radii for high, 600-1,000m for medium and 1,800-3,000m for low confidence respectively. The ranges reflect variability within the fifteen seam groups modelled at MTW.</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>MTW has had one audit completed in the past six years. The audit was conducted in March 2010 by the Xstract Group (report: Resources and Reserves Internal Audit Report Executive Summary Mt Thorley Warkworth).</li> <li>The outcome of this audit was 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 New South Wales (NSW) and Queensland (QLD). The Mineral Resource data collection and estimation techniques used for the MTW 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 4% 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>