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30 October 2020

Market Announcements Australian Securities Exchange Level 4, 20 Bridge Street SYDNEY NSW 2000

### **UPDATE ON RESOURCES AND RESERVES**

Bathurst Resources Limited (ASX: BRL) advises an update on resources and reserves. Total resources<sup>1</sup> have decreased from 193 million tonnes ("Mt") to 191Mt at 30 June 2020.

Notable changes year-on-year have been:

- Stockton resource has decreased by 1.2Mt with the key variations being:
  - The addition of the A18 fines tailings on completion of a flotation pre-feasibility study.
  - A reduction due to an updated geology model combined with a review of the potential economic recovery of resources.
- The Upper Waimangaroa resource has decreased by 1.1Mt with the key variations being:
  - Mining depletion and back filling against previously mined highwalls, requiring the review of potentially recoverable resources offset by additional resources identified by exploration drilling.

There have been no significant changes to the reserve numbers except the addition of probable reserves at Stockton on the successful completion of the A18 fines pre-feasibility study (+0.9Mt).

The documents appended<sup>2</sup> have been generated as JORC Table 1 disclosures as required under clause 5 of the JORC (2012) code. The Table 1 documents support both first release and materially changed mineral resources or ore reserves for significant Bathurst projects.

Where there has been no material change the company has continued to report under the JORC 2004 standard.

On behalf of the board of Bathurst Resources Limited.

Richard Tacon, CEO

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<sup>&</sup>lt;sup>1</sup> Resource values are presented here as the sum of 100 percent of Bathurst owned permits and 100 percent of BT Mining permits. In the supporting tables Bathurst's ownership percentage against each permit area is clearly documented.

<sup>&</sup>lt;sup>2</sup> Note that the image quality in the attached document has been reduced in order to meet file size limits set by the ASX. A copy of the high resolution version of this document can be obtained by contacting the Company (subject to the requestor's email account file size restrictions).

Table 1 - Resource tonnes (rounded to the nearest million tonnes)

Area	Bathurst ownership	2020 Measured resource	2019 Measured resource	Change	2020 Indicated resource	2018 Indicated resource	Change	2020 Inferred resource	2019 Inferred resource	Change	2020 Total resource	2018 Total resource	Change
Escarpment (1)	100%	3.4	3.4	0.0	2.2	2.2	0.0	1.1	1.1	0.0	6.7	6.7	0.0
Cascade (1)	100%	0.5	0.5	0.0	0.6	0.6	0.0	0.3	0.3	0.0	1.4	1.4	0.0
Deep Creek (1&3)	100%	6.2	6.2	0.0	3.1	3.1	0.0	1.6	1.6	0.0	10.9	10.9	0.0
Coalbrookdale (1)	100%	0.0	0.0	0.0	3.4	3.4	0.0	4.7	4.7	0.0	8.1	8.1	0.0
Whareatea West (1)	100%	7.9	7.9	0.0	11.2	11.2	0.0	4.8	4.8	0.0	23.9	23.9	0.0
Sullivan (1)	100%	2.7	2.7	0.0	5.1	5.1	0.0	4.1	4.1	0.0	11.9	11.9	0.0
South Buller totals	100%	20.7	20.7	0.0	25.6	25.6	0.0	16.6	16.6	0.0	62.9	62.9	0.0
Stockton (2, 4, 5, 6 & 7)	65%	0.7	1.0	(0.3)	10.2	9.7	0.5	5.9	7.3	(1.4)	16.8	18.0	(1.2)
Upper Waimangaroa (Met) (2,5,7,8 & 10)	65%	0.7	0.8	(0.1)	13.3	12.9	0.4	32.6	32.8	(0.2)	46.6	46.5	0.1
Upper Waimangaroa (Thermal) <sup>(2, 5, 7, 8,10</sup>	65%	0.0	0.1	(0.1)	0.6	1.2	(0.6)	0.9	1.3	(0.4)	1.5	2.6	(1.1)
Stockton totals	65%	1.4	1.9	(0.5)	24.1	23.8	0.3	39.4	41.4	(2.0)	64.9	67.1	(2.2)
Millerton North (1 & 3)	100%	0.0	0.0	0.0	1.9	1.9	0.0	3.6	3.6	0.0	5.5	5.5	0.0
North Buller Totals (1&3)	100%	2.4	2.4	0.0	7.3	7.3	0.0	10.9	10.9	0.0	20.6	20.6	0.0
Blackburn (1&3)	100%	0.0	0.0	0.0	5.8	5.8	0.0	14.1	14.1	0.0	19.9	19.9	0.0
North Buller totals	100%	2.4	2.4	0.0	15.0	15.0	0.0	28.6	28.6	0.0	46.0	46.0	0.0
Buller Coal Project totals		24.5	25.0	(0.5)	64.7	64.4	0.3	84.6	86.6	(2.0)	173.8	176.0	(2.2)
Takitimu <sup>(1&amp;8)</sup>	100%	0.3	0.3	0.0	1.9	2.1	(0.2)	0.0	0.3	(0.3)	2.2	2.7	(0.5)
New Brighton (1)	100%	0.2	0.2	0.0	0.2	0.2	0.0	0.2	0.2	0.0	0.6	0.6	0.0
Albury (1)	100%	0.0	0.0	0.0	0.7	0.7	0.0	0.1	0.1	0.0	0.8	0.8	0.0
Canterbury Coal (1 & 4))	100%	0.9	1.0	(0.1)	1.3	1.3	0.0	1.0	1.0	0.0	3.2	3.3	(0.1)
Southland/Canterbury totals	100%	1.4	1.5	(0.1)	4.1	4.3	(0.2)	1.3	1.6	(0.3)	6.8	7.4	(0.6)
Rotowaro (2, 4, 5, 9 & 11)	65%	0.6	0.6	0.0	2.3	1.8	0.5	0.6	0.4	0.2	3.5	2.8	0.7
Rotowaro North <sup>(9)</sup>	65%	0.5	0.5	0.0	3.8	3.8	0.0	0.1	0.1	0.0	4.4	4.4	0.0
Maramarua <sup>(4, 5, &amp; 9)</sup>	65%	2.3	2.4	(0.1)	0.1	0.2	(0.1)	0.1	0.0	0.1	2.5	2.6	(0.1)
North Island totals (5)	65%	3.4	3.5	(0.1)	6.2	5.8	0.4	0.8	0.5	0.3	10.4	9.8	0.6
Total		29.3	30.0	(0.7)	75.0	74.5	0.5	86.7	88.7	(2.0)	191.0	193.2	(2.2)

### Note

All resources and reserves quoted in this release are reported in terms as defined in the 2004 and 2012 Editions of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' as published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia ("JORC").

The measured and indicated mineral resources are inclusive of those mineral reserves modified to produce the ore reserves. Rounding of tonnes as required by reporting guidelines may result in summation differences between tonnes and coal quality. All resources quoted are reported as of 30 June 2020.

### Table 1 - Resource tonnes (rounded to the nearest million tonnes) continued

#### Note

- Resource tonnages have been calculated using a density value calculated using approximated in-ground moisture values (Preston and Sanders method) and as such tonnages quoted in this report are wet tonnes (unless stipulated otherwise). All coal qualities quoted are on an air-dried basis.
- Stockton and Upper Waimangaroa density values are based on air-dried ash density regressions. Stockton, Upper Waimangaroa, Rotowaro and Maramarua are reported on an air-dried basis.
- No additional work has been undertaken on the coal resources for Deep Creek, Millerton North and Blackburn since originally reported. This information was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.
- <sup>4</sup> Resources were depleted by mining.
- Stockton, Upper Waimangaroa, Rotowaro, Rotowaro North and Maramarua are owned by BT Mining Limited (65 percent Bathurst Resources Limited / 35 percent Talleys Energy Limited).
- <sup>6</sup> Addition of A18 Fines Stockpile on successful completion of pre-feasibility study.
- <sup>7</sup> Update to geological model combined with a review of potential economic recovery.
- 8 Mining depletion and resources sterilised by back fill against previously mined highwalls.
- Density is based on a fixed 1.3 tonnes per cubic metre.
- <sup>10</sup> Re-allocation of coal into export blends following review of updated mine plan.
- <sup>11</sup> Mining depletion offset by significant update to geological model.

Table 2 - Average coal quality - measured

Area	Bathurst ownership	Measured resource (Mt)	Ash % (AD)	Sulphur % (AD)	Volatile matter % (AD)	Fixed carbon % (AD)	CSN	Inherent moisture	In situ moisture	Calorific value (AD)
Escarpment	100%	3.4	16.8	0.7	33.0	49.3	7.0	1.0	5.6	28.6
Cascade	100%	0.5	15.5	1.7	39.3	42.6	4.5	2.6	7.6	30.8
Deep Creek	100%	6.2	11.0	2.5	32.9	53.9	-	2.2	5.2	29.7
Coalbrookdale	100%	0.0	-	-	-	-	-	-	-	-
Whareatea West	100%	7.9	24.9	0.8	24.0	50.5	7.0	0.6	6.3	26.5
Sullivan	100%	2.7	13.8	1.1	32.1	52.9	7.0	1.2	6.6	29.7
Stockton	65%	0.7	8.3	2.6	31.1	59.5	7.5	1.1	-	32.4
Upper Waimangaroa (Met)	65%	0.7	3.7	0.8	38.0	53.9	4.4	4.4	-	31.5
Upper Waimangaroa (Thermal)	65%	0.0	-	-	-	-	-	-	-	-
Millerton North	100%	0.0	-	-	-	-	-	-	-	-
North Buller	100%	2.4	8.6	4.7	43.1	45.4	4.5	2.9	11.4	29.7
Blackburn	100%	0.0	-	-	-	-	-	-	-	-
Takitimu	100%	0.3	13.5	0.3	35.9	35.6	N/A	15.0	24.6	20.5
New Brighton	100%	0.2	10.3	0.4	35.0	41.2	N/A	13.5	20.6	22.6
Albury	100%	0.0	-	-	-	-	-	-	-	-
Canterbury Coal	100%	0.9	9.6	0.9	35.0	37.1	N/A	18.3	26.7	21.1
Rotowaro	65%	0.6	5.9	0.3	38.0	43.5	N/A	12.6	-	24.2
Rotowaro North	65%	0.5	7.2	0.3	36.2	43.5	N/A	13.1	-	23.9
Maramarua	65%	2.3	5.9	0.2	37.5	38.8	N/A	17.8	-	22.3

Table 3 - Average coal quality - indicated

Area	Bathurst ownership	Indicated resource (Mt)	Ash % (AD)	Sulphur % (AD)	Volatile matter % (AD)	Fixed carbon % (AD)	CSN	Inherent moisture	In situ moisture	Calorific value (AD)
Escarpment	100%	2.2	12.6	1.2	34.9	51.3	7.5	1.2	5.5	30.0
Cascade	100%	0.6	14.8	1.8	38.3	44.5	4.0	2.4	8.0	29.3
Deep Creek	100%	3.1	9.7	2.7	34.7	53.6	-	2.0	4.8	30.3
Coalbrookdale	100%	3.4	12.0	1.8	35.9	50.4	5.0	1.7	5.6	29.8
Whareatea West	100%	11.2	28.5	1.1	22.3	48.5	6.0	0.7	6.3	25.0
Sullivan	100%	5.1	15.3	1.2	30.6	52.9	7.0	1.2	6.6	29.3
Stockton	65%	10.2	7.9	2.4	35.6	54.2	6.9	2.3	-	31.9
Upper Waimangaroa (Met)	65%	13.3	4.6	2.0	38.9	53.1	5.1	3.5	-	30.6
Upper Waimangaroa (Thermal)	65%	0.6	6.5	3.9	37.3	52.1	0.0	4.1	-	27.7
Millerton North	100%	1.9	9.7	4.9	36.9	52.4	10.0	1.0	6.1	31.1
North Buller	100%	7.3	8.8	5.1	42.6	46.3	5.0	2.3	9.4	30.0
Blackburn	100%	5.8	3.9	4.3	42.1	51.8	6.0	2.2	10.1	30.4
Takitimu	100%	1.9	11.0	0.3	35.7	38.1	N/A	15.2	25.1	20.9
New Brighton	100%	0.2	10.6	0.4	35.0	39.7	N/A	14.7	21.3	22.4
Albury	100%	0.7	7.2	1.0	30.9	24.5	N/A	37.4	41.2	15.6
Canterbury Coal	100%	1.3	9.4	0.9	35.1	37.4	N/A	18.1	26.7	21.2
Rotowaro	65%	2.3	5.1	0.3	38.0	44.0	N/A	12.9	-	24.1
Rotowaro North	65%	3.8	6.4	0.2	35.9	45.5	N/A	12.2	-	24.3
Maramarua	65%	0.1	9.7	0.2	36.4	38.3	N/A	15.6	-	22.1

Table 4 - Average coal quality - inferred

Table + Average coal qua	· 1									
Area	Bathurst ownership	Inferred resource (Mt)	Ash % (AD)	Sulphur % (AD)	Volatile matter % (AD)	Fixed carbon % (AD)	CSN	Inherent moisture	In situ moisture	Calorific value (AD)
Escarpment	100%	1.1	12.5	1.6	35.2	51.0	7.0	1.3	5.4	29.9
Cascade	100%	0.3	16.5	2.2	36.7	44.7	4.0	2.1	6.7	27.6
Deep Creek	100%	1.6	10.1	2.4	29.7	57.8	-	2.4	7.1	29.7
Coalbrookdale	100%	4.7	12.7	1.8	35.7	49.8	5.0	1.8	5.7	29.5
Whareatea West	100%	4.8	29.5	0.9	22.0	47.8	6.0	0.7	6.4	24.5
Sullivan	100%	4.1	16.0	1.1	30.5	52.3	6.5	1.2	6.5	29.1
Stockton	65%	5.9	5.5	3.2	35.0	58.3	7.8	1.2	-	33.4
Upper Waimangaroa (Met)	65%	32.6	5.8	2.1	38.7	51.9	4.6	3.6	-	30.4
Upper Waimangaroa (Thermal)	65%	0.9	4.1	1.6	34.7	54.7	2.3	6.6	-	27.8
Millerton North	100%	3.6	12.0	5.5	35.3	51.6	9.0	1.1	7.2	30.2
North Buller	100%	10.9	9.9	5.1	45.6	42.3	5.0	2.2	9.6	29.5
Blackburn	100%	14.1	6.4	4.8	41.8	49.5	6.0	2.3	11.2	30.1
Takitimu	100%	0.0	14.7	0.4	37.3	33.7	N/A	14.3	25.7	20.8
New Brighton	100%	0.2	10.7	0.4	34.5	40.3	N/A	14.5	21.2	22.4
Albury	100%	0.1	7.3	0.8	30.2	23.4	N/A	39.1	43.1	15.6
Canterbury Coal	100%	1.0	9.9	1.0	35.1	37.3	N/A	17.7	26.5	21.2
Rotowaro	65%	0.6	4.9	0.3	38.1	43.7	N/A	13.3	-	24.0
Rotowaro North	65%	0.1	6.0	0.2	35.8	46.5	N/A	11.7	-	24.5
Maramarua	65%	0.1	5.0	0.3	37.7	41.1	N/A	16.2	-	22.9

### **Coal reserves**

Table 5 - Coal reserves (ROM) tonnes

		Proved (Mt)			P	robable	(Mt)	Total (Mt)		
ROM coal area	Bathurst ownership	2020	2019	Change	2020	2019	Change	2020	2019	Change
Escarpment Domestic (A & E)	100%	0.2	0.2	0.0	0.1	0.1	0.0	0.3	0.3	0.0
Escarpment Export (A & E)	100%	2.3	2.3	0.0	0.5	0.5	0.0	2.8	2.8	0.0
Whareatea West (A & E)	100%	0.0	0.0	0.0	15.8	15.8	0.0	15.8	15.8	0.0
Stockton (B, D, J & L)	65%	0.6	0.7	(0.1)	7.1	5.9	1.2	7.7	6.6	1.1
Upper Waimangaroa (Met) (B,D&K)	65%	0.6	0.8	(0.2)	2.0	2.5	(0.5)	2.6	3.3	(0.7)
Takitimu <sup>(A, E, &amp; F)</sup>	100%	0.0	0.1	(0.1)	1.2	1.2	0.0	1.2	1.3	(0.1)
Canterbury Coal (A, E, & G)	100%	0.5	0.6	(0.1)	0.6	0.7	(0.1)	1.1	1.3	(0.2)
Rotowaro (B, D & F)	65%	0.4	0.5	(0.1)	1.2	1.4	(0.2)	1.6	1.9	(0.3)
Maramarua <sup>(B, D &amp; K)</sup>	65%	1.8	2.4	(0.6)	0.1	0.1	0.0	1.9	2.5	(0.6)
Total		6.4	7.6	(1.2)	28.6	28.2	0.4	35.0	35.8	(8.0)

Table 6 - Marketable coal reserves tonnes

			Proved (	Mt)	P	robable	(Mt)	Total (Mt)			
Product coal area	Bathurst ownership	2020	2019	Change	2020	2019	Change	2020	2019	Change	
Escarpment Domestic (A, E & H)	100%	0.2	0.2	0.0	0.1	0.1	0.0	0.3	0.3	0.0	
Escarpment Export (A, E & H)	100%	1.9	1.9	0.0	0.4	0.4	0.0	2.3	2.3	0.0	
Whareatea West (A, E & H)	100%	0.0	0.0	0.0	9.9	9.9	0.0	9.9	9.9	0.0	
Stockton (B, D, J & L)	65%	0.4	0.6	(0.2)	5.0	4.6	0.4	5.4	5.2	0.2	
Upper Waimangaroa (Met) (B, D & K)	65%	0.5	0.7	(0.2)	1.7	2.3	(0.6)	2.2	3.0	(0.8)	
Takitimu <sup>(C, E &amp; F)</sup>	100%	0.0	0.1	(0.1)	1.1	1.1	0.0	1.1	1.2	(0.1)	
Canterbury Coal (C, E & G)	100%	0.5	0.6	(0.1)	0.6	0.6	0.0	1.1	1.2	(0.1)	
Rotowaro (D & F)	65%	0.4	0.4	0.0	1.0	1.3	(0.3)	1.4	1.7	(0.3)	
Maramarua <sup>(D&amp;K)</sup>	65%	1.7	2.3	(0.6)	0.1	0.1	0.0	1.8	2.4	(0.6)	
Total		5.6	6.8	(1.2)	19.9	20.4	(0.5)	25.5	27.2	(1.7)	

Table 7 - Marketable coal reserves - proved and probable average coal quality

			Pr	oved m	arketal	ole		Probable marketable						
Area	Bathurst ownership	¥	Ash %	Sulphur %	%WЛ	CSN	CV (MJ/Kg)	¥	Ash %	Sulphur %	%WЛ	CSN	CV (MJ/Kg)	
Escarpment Domestic (A, E & H)	100%	0.2	12.9	1.9	35.0	6.8	28.9	0.1	14.5	1.5	34.0	6.1	28.4	
Escarpment Export (A, E & H)	100%	1.9	8.9	0.5	35.1	8.5	31.3	0.4	7.1	0.6	36.4	8.5	32.0	
Whareatea West (A, E & H)	100%	-	-	-	-	-	-	9.9	12.1	0.9	26.0	9.5	31.9	
Stockton (B, D, J & L)	65%	0.4	5.2	2.4	31.1	9.0	33.7	5.0	4.4	3.0	35.4	8.0	34.1	
Upper Waimangaroa (Met) (B, D & K)	65%	0.5	3.0	0.7	37.8	4.5	31.8	1.7	3.0	1.4	37.6	4.5	31.8	
Takitimu <sup>(C, E, H &amp; I)</sup>	100%	0.0	8.4	0.2	35.8	N/A	21.7	1.1	7.3	0.2	36.3	N/A	22.0	
Canterbury Coal (C, E, G & H)	100%	0.5	9.5	0.9	35.3	N/A	21.3	0.6	9.1	0.9	35.3	N/A	21.4	
Rotowaro (C, D, F & I)	65%	0.4	5.6	0.3	36.9	N/A	24.2	1.0	5.4	0.3	37.5	N/A	24.3	
Maramarua <sup>(C, D, K &amp; I)</sup>	65%	1.7	5.8	0.2	37.5	N/A	22.3	0.1	8.3	0.2	37.4	N/A	21.6	

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### **Coal reserves**

Table 8 - Marketable coal reserves - total average quality

Area	Bathurst ownership	Coal type	Mining method	Mt	Ash %	Sulphur %	VM%	CSN	CV (MJ/Kg)
Escarpment Domestic (A, E & H)	100%	Thermal	Open Pit	0.3	13.4	1.8	34.7	6.6	28.7
Escarpment Export (A, E & H)	100%	Met	Open Pit	2.3	8.6	0.5	35.3	8.5	31.4
Whareatea West (A, E & H)	100%	Met	Open Pit	9.9	12.1	0.9	26.0	9.5	31.9
Stockton (B, D, J & L)	65%	Met	Open Pit	5.4	4.4	3.0	35.1	8.0	34.1
Upper Waimangaroa (Met) (B,D&K)	65%	Met	Open Pit	2.2	3.0	1.2	37.6	4.5	31.8
Takitimu <sup>(CE,F&amp;I)</sup>	100%	Thermal	Open Pit	1.1	7.3	0.2	36.3	N/A	22.0
Canterbury Coal (C, E, G & I)	100%	Thermal	Open Pit	1.1	9.3	0.9	35.3	N/A	21.3
Rotowaro (D, F & I)	65%	Thermal	Open Pit	1.4	5.5	0.3	37.3	N/A	24.3
Maramarua (B, D, K & I)	65%	Thermal	Open Pit	1.8	7.8	0.2	49.1	N/A	22.2

#### Note

All reserves quoted in this release are reported in terms as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' as published by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy, Australian Institute of Geoscientists and Minerals Council of Australia ("JORC").

The measured and indicated mineral resources are inclusive of ore reserves. Coal reserve (Run of Mine (ROM) tonnes) include consideration of standard mining factors. Rounding of tonnes as required by reporting guidelines may result in summation differences between tonnes and coal quality. All ore reserves quoted are reported as of 30 June 2020.

- A Reserve tonnages have been calculated using a density value calculated using approximated in-ground moisture values (Preston and Sanders method) and as such reserve tonnages quoted in this report are wet tonnes.
- <sup>B</sup> Stockton and Upper Waimangaroa density values are based on air-dried ash density regressions.
- C ROM coal reserves are reported at a moisture content that is based on long term average coal production data and as such all tonnages quoted in this report are wet tonnes.
- Stockton, Upper Waimangaroa, Rotowaro and Maramarua are owned by BT Mining Limited in which Bathurst has a 65 percent equity share.
- E Escarpment Domestic reserves, Escarpment Export reserves, Whareatea West reserves, Takitimu reserves and Canterbury reserves are 100 percent Bathurst Resources Limited ownership.
- F Decrease in coal reserves due to mining depletion offset against increased tonnage from a revised geological model.
- Decrease in coal reserves due to mining depletion.
- Marketable reserves are based on geologic modelling of the anticipated yield from ROM reserves. Total marketable coal reserves are reported at a product specific moisture content (10 12 percent for Escarpment Export and Whareatea West, 5 8 percent at Escarpment Domestic) for sale after the beneficiation of the total coal reserves, converted using ASTM D3180 ISO 1170. Reserve tonnages have been calculated using a density value calculated using approximated in-ground moisture values (Preston and Sanders method) and as such all tonnages quoted in this report are wet tonnes. All coal qualities quoted are on an air-dried basis.
- Marketable reserves are based on reconciled yields from ROM reserves. Marketable coal reserves are reported at a product specific moisture content based on long term average coal production data and as such all tonnages quoted in this report are wet tonnes.
- Decrease in coal reserves due to mining depletion offset against increased stockpile tonnage on completion of A18 fines prefeasibility study.
- $^{ extsf{K}}$  Decrease in coal reserves due to mining depletion and updated geotechnical design criteria.
- Increase in coal reserves due to reconciled mining recovery.

### Resource quality

Bathurst is not aware of any information to indicate that the quality of the identified resources will fall outside the range of specifications for reserves as indicated in the above table. Further resource and reserve information can be found on Bathurst's website at <a href="https://www.bathurst.co.nz">www.bathurst.co.nz</a>.

### Mineral resource and ore reserves governance and estimation process

Resources and reserves are estimated by internal and external personnel, suitably qualified as Competent Persons under the Australasian Institute of Mining and Metallurgy, reporting in accordance with the requirements of the JORC code, industry standards and internal quidelines.

All resource estimates and supporting documentation are reviewed by a Competent Person either employed directly by Bathurst or employed as an external consultant. If there is a material change in an estimate of a resource, or if the estimate is an inaugural resource, the estimate and all relevant supporting documentation is further reviewed by an external suitably qualified Competent Person.

All reserve estimates are prepared in conjunction with prefeasibility, feasibility and life of mine studies which consider all material factors. All resource and reserve estimates are then further reviewed by suitably qualified internal management.

The resources and reserves statements included in Bathurst's 2020 annual report have been reviewed by qualified internal and external Competent Persons, and internal management, prior to their inclusion.

#### **Competent person statements**

The information on this report that relates to mineral resources for Deep Creek and the mineral reserves for Escarpment Export and Whareatea West is based on information compiled by Sue Bonham-Carter, who is a full time employee of Golder Associates (NZ) Ltd and is a Chartered Professional and member of the Australasian Institute of Mining and Metallurgy and member of Professional Engineers and Geoscientists of British Columbia, Canada. Ms Bonham-Carter has a BSc Engineering (Mining) (Hons) from the Queen's University, Canada. Ms Bonham-Carter has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which she is undertaking to qualify as a Competent Person as defined in the 2004 Edition and 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Ms Bonham-Carter consents to the inclusion in this report of the matters based on her information in the form and context in which it appears above.

The information in this report that relates to exploration results and mineral resources for Escarpment Domestic, Escarpment Export, Sullivan, Cascade, Albury, Coalbrookdale, Whareatea West, Millerton North, North Buller, Blackburn, Takitimu, Canterbury Coal, New Brighton, Rotowaro, Rotowaro North, Maramarua and mineral reserves for Escarpment Domestic is based on information compiled by Hamish McLauchlan as a Competent Person who is a full time employee of Bathurst Resources Limited and is a member of the Australasian Institute of Mining and Metallurgy. Mr McLauchlan has a BSc and MSc (Hons) majoring in geology from the University of Canterbury. Mr McLauchlan has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition and 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr McLauchlan consents to the inclusion in this report of the matters based on his information in the form and context in which it appears above.

The information in this report that relates to exploration results and mineral resources for Stockton and Upper Waimangaroa is based on information compiled by Mark Lionnet as a Competent Person who is a full time employee of BT Mining Limited and is a member of the Australasian Institute of Mining and Metallurgy. Mr Lionnet has a BSc (Hons) majoring in geology from the University of Witwatersrand. Mr Lionnet has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Lionnet consents to the inclusion in this report of the matters based on his information in the form and context in which it appears above.

The information on this report that relates to mineral reserves for Takitimu, Canterbury, Rotowaro and Maramarua is based on information compiled by Damian Spring who is a full time employee of Bathurst Resources Limited and is a Chartered Professional member of the Australasian Institute of Mining and Metallurgy. Mr Spring has a Bachelor of Engineering (Mining) from the University of Auckland. Mr Spring has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Spring consents to the inclusion in this report of the matters based on his information in the form and context in which it appears above.

The information on this report that relates to mineral reserves for Stockton and Upper Waimangaroa is based on information compiled by lan Harvey who is a full-time employee of Bathurst Resources Limited and is a member of the Australasian Institute of Mining and Metallurgy. Mr Harvey has a Bachelor in Mining Engineering from the University of Otago. Mr Harvey has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Harvey consents to the inclusion in this report of the matters based on his information in the form and context in which it appears above.

# JORC Code, 2012 Edition - Table 1 Report for the Denniston Plateau 20**20**

Section 1 Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	<ul> <li>Multiple campaigns of data acquisition have been carried out on the Denniston Plateau over the past century.</li> <li>Modern exploration campaigns include data from 2010: <ul> <li>326 PQ-HQ Triple Tube Core (TTC) holes.</li> <li>96 production blast holes.</li> <li>13 outcrop trenches.</li> <li>Down-hole geophysics are available for 211 of these modern drillholes.</li> </ul> </li> <li>Historic data includes: <ul> <li>Five reverse circulation holes 2009-2010.</li> <li>67 PQ-HQ TTC holes from 1984-2010.</li> <li>23 NQ TTC holes from 1975-1978.</li> <li>74 rotary wash drillholes from 1948-1961.</li> <li>Three outcrop trenches.</li> <li>49 historic drillholes of various drilling methods.</li> <li>40 holes of this dataset have down-hole geophysics data available.</li> </ul> </li> <li>Recent drilling has aimed to infill areas lacking data and to test reliability of historic data. Drilling has been concentrated on areas deemed closer to production therefore tighter drill spacing exists in Cascade and Escarpment than Whareatea West and Coalbrookdale.</li> <li>Coal sampling is based on the standardised BRL coal sampling procedures.</li> <li>46 additional holes drilled by Solid Energy NZ Ltd (SENZ) were added to the database with the purchase of the Sullivan Mining License. These holes were logged and sampled using standards very similar to those of BRL.</li> <li>Coal quality ply samples have been selected on all coal logged by a geologist with 95% confidence that the ash will fall below 50%. Material with an estimated ash over 50% was not sampled unless the material was a sandstone parting of &lt; 0.1m in thickness within a coal seam whereby it would be included within a larger ply sample.</li> <li>Ply samples were generally taken over intervals no greater than 0.5m.</li> </ul>
Drilling techniques	<ul> <li>All analytical data has been assessed and verified before inclusion into the resource model.</li> <li>All BRL managed drilling campaigns have utilised the following drilling methods: <ul> <li>Full PQ Triple Tube Core.</li> <li>HQ Triple Tube Core only where necessary.</li> <li>Open-holed overburden where applicable.</li> <li>Logged production blast holes using top head hammer blast rig.</li> </ul> </li> <li>Historic drilling techniques include: <ul> <li>PQ Triple Tube Core.</li> <li>HQ Triple Tube Core.</li> <li>NQ Triple Tube Core.</li> <li>Open-holed.</li> <li>Rotary wash.</li> <li>Reverse circulation.</li> </ul> </li> <li>All exploration drillholes were collared vertically.</li> <li>PQ sized drilling was utilised to maximise the core recovery.</li> </ul>
Drill sample recovery	<ul> <li>Core recovery was measured by the logging geologist for each drillers' run (usually 1.5m) in each drillhole. If recovery of coal intersections dropped below 85% the drillhole was re-drilled. Drillers were paid an incentive if coal recovery was above 90%.</li> <li>In some instances the recovery of thin rider seams (&lt; 0.5m) was poor due to the soft friable nature of the coal. Therefore the sample dataset for the two rider seams was not as evenly</li> </ul>

spatially distributed as the main seam.

Criteria	Commentary
	<ul> <li>Average total core recovery over the modern drilling campaigns was 95.6% with core recovery of coal at 93.6%.</li> <li>Where small intervals of coal were lost, and was confirmed by geophysics, ash values were estimated using the results of overlying and underlying ply samples and the relative response of the open-hole density trace.</li> <li>Geochemical sampling for overburden characterisation was also completed by taking representative samples of core on a lithological basis with a maximum sample length of 5m.</li> </ul>
Logging	<ul> <li>BRL has developed a standardised core logging procedure and all core logging completed by BRL and its contractors has followed this standard.</li> <li>All modern drill core has been geologically and geotechnically logged by geologists under the supervision and guidance of a team of experienced exploration geologists.</li> <li>As much data as possible has been logged and recorded including geotechnical and rock strength data.</li> <li>All core was photographed prior to sampling. Depth metre marks and ply intervals are noted on core in each photograph.</li> <li>The geophysical logging company maintained and calibrated all tools as per their internal calibration procedures. Additionally, geophysics equipment was calibrated and tested using a calibration hole on the plateau with known depth to coal, thickness and quality.</li> <li>BRL aimed to geophysically log every drillhole that intersected coal providing hole conditions and operational constraints allowed. The standard suite of tools run included density, dip meter, sonic, and natural gamma.</li> <li>Where drillhole conditions were poor or mine workings were intersected only in-rods density was acquired. In-rods density produced a reliable trace for use in seam correlation and depth adjustment but was not used for ash correlations.</li> <li>Down hole geophysical logs were used to aid core logging. Down hole geophysics were used to correlate coal seams, to confirm depths and thickness of coal seams and to validate drillers' logs. Geophysics were also used to accurately calculate recovery rates of coal.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>For all exploration data acquired by BRL, an in-house detailed sampling procedure is used. Sampling and sample preparation were consistent with international coal sampling methodology.</li> <li>Ply samples include all coal recovered for the interval of the sample. Core was not cut or halved. Ply sample intervals were generally 0.5m unless dictated by thin split or parting thickness.</li> <li>All drilling in the recent campaigns has been completed using triple tube cored holes. No chip or RC samples were taken in these campaigns. Some historic RC and wash drilled holes have poor sampling methods and are excluded from the coal quality model.</li> <li>Assay samples were completed at the core repository after transport from drill site in core boxes. Samples were taken as soon as practicable and stored in a chiller until transport to the coal quality laboratory.</li> <li>A series of random duplicate samples representing 1.3% of the total number of samples from Buller has been completed by CRL Energy Ltd. The results of this duplicate testing were comparable to that reported by SGS New Zealand Limited (SGS).</li> </ul>

### Commentary

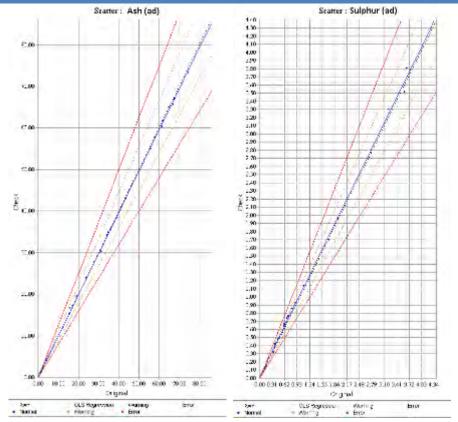


Figure 1 Scatter graphs showing the consistent results obtained for duplicate samples analysed at SGS (original) and CRL (check).

### Quality of assay data and laboratory tests

- All coal quality testing completed for BRL has been carried out by accredited laboratory SGS.
- SGS have used the following standards for their assay test work:
  - Proximate Analysis is carried out to the ASTM 7582 standard.
  - Ash has also used the standard ISO 1171.
  - Volatile matter has also used the standard ISO 562.
  - o Inherent moisture has also used the ISO 5068.
  - o Total sulphur analysis is carried out to the ASTM 4239 standard.
  - Crucible swell tests are completed using the ISO 501 standard.
  - Calorific value results are obtained using the ISO 1928 standard.
  - o Loss on drying data is completed using the ISO 13909-4 standard.
  - Relative Density is calculated using the standard AS 1038.21.1.1.
- CRL completed much of the assay test work for samples collected prior to BRL taking over the projects.
- CRL used the following standards for their test work:
  - Inherent Moisture tests utilised the ISO 117221 standard.
  - Ash tests utilised the ISO 1171 standard.
  - Volatile matter tests utilised the ISO 562 standard.
  - Calorific value tests utilised the ISO 1928 standard.
  - o Crucible swelling index testing was carried out using the ISO 501 standard.
- Both SGS and CRL are accredited laboratories.
- BRL has completed a total of 56 composite samples. Composite samples have been tested using the following standards:

Test Work	Standard Followed
Loss on air drying	(ISO 13909-4)
Inherent Moisture	(ASTM D 7582 mod)
Ash	(ASTM D 7582 mod)
Volatile Matter	(ASTM D 7582 mod)
Fixed Carbon	by difference

Criteria	Co	mmentary						
		Sulphur	(ASTM D 4239)					
		Swelling Index	(ISO 501)					
		Calorific Value	(ISO 1928)					
		Mean Maximum Reflectance All Vitrinite (RoMax)	Laboratory Standard					
		Chlorine in Coal	(ASTM D4208)					
		Hardgrove grindability index	(ISO 5074)					
		Gieseler plastometer	(ASTM D 2639)					
		Audibert arnu dilatometer	(ISO 349)					
		Forms of sulphur	(AS 1038 Part 11)					
		Ash fusion temperatures	(ISO 540)					
		Ash constituents (xrf)	(ASTM D 4326)					
		Ultimate Analysis	(ASTM D3176-09)					
	•	All analysis was undertaken and r	eported on an air-dried basis unle	ss stated otherwise.				
Verification of sampling and assaying	•	Sample assay results have been downhole geophysics data. Result with expected values utilising known Anomalous assay results were invand a retest undertaken from same Where holes were geophysical lothe geophysics. Otherwise this is samples. Assessments of coal intrand by a senior geologist. Geophyseams and accurate determination to guide sampling and identify high 12 twinned holes have been dridrillholes.  Laboratory data is imported direct the SGS laboratory or at BRL.  Assay results files are securely stream.	ts are also inspected by experience who coal quality relationships for the restigated and, where necessary, aple residue.  In gged, verification of seam details done by physical assessment of the resections are undertaken by an invisic allows confirmation of the properties of the p	ted geologists and compared the Buller coalfield. The laboratory was contacted is made through analysis of the core and/or other drillhole internal or contract geologist, resence (or absence) of coal sity measurements are used that results obtained between the manual data entry at either				
	•	the SGS laboratory or at BRL.	ored on a backup server.	·				

### Location of data points

• Modern drillhole positions have been surveyed using Trimble RTK survey equipment.

is not inadvertently compromised.

has been retained for modeling purposes.

Some historic drill collars have been resurveyed. Some historic collars are not able to be located.

Localised weathering of coal near fault zones or near outcrops can affect coal assay results. There are a number of instances where this has occurred and only ash data from these samples

- Historic mine plans georeferenced by locating and surveying historic survey marks, survey pegs and mine portals drawn on mine plans.
- New Zealand Trans Mercator 2000 Projection (NZTM) is used by BRL for most of its project areas. NZTM is considered a standard coordinate system for general mapping within New Zealand. Historic data has been converted from various local circuits and map grids using NZ standard cadastral conversions.
- A LiDAR survey was carried out over the Denniston Plateau in December 2011, with a repeat LiDAR survey flown over Cascade in January 2013. This LiDAR data provided very accurate topographic data used in the model. Contractors' specifications state that, for the choice of sensor and operating settings used for this project, the LiDAR sensor manufacturer's specification states 0.15m (1-sigma) horizontal accuracy and 0.1m (1-sigma) as the open ground elevation accuracy.
- Surveyed elevations of drillhole collars are validated against the LiDAR topography and orthocorrected aerial photography.

### Criteria Commentary Data spacing Data spacing for the Denniston Plateau project areas has been estimated by calculating the and diameter required to fill the total area of the project divided by number of drillholes within that distribution area. Escarpment has an average drillhole spacing of 114m. Whareatea West has an average drillhole spacing of 257m. Coalbrookdale has an average drillhole spacing of 198m. Cascade has an average drillhole spacing of 76m. Drillhole spacing is not the only measurement used by BRL to establish the degree of resource uncertainty and therefore the resource classification. BRL uses a multivariate approach to resource classification. The current drillhole spacing is deemed sufficient for coal seam correlation purposes. Geostatistics have been applied to the Denniston dataset with positive results being obtained. Variography results have been applied to grade estimation search parameters. The samples database is composited to 0.5m sample length prior to grade estimation. Any samples with composited length of less than 0.1m are not included in the estimation. Compositing starts at the top of seam and small samples are not distributed or merged. Orientation of All exploration drilling has been completed at a vertical orientation. Deviation data was acquired data in by BRL during modern campaigns and showed little to no deviation in those holes. Holes without relation to deviation plots are assumed to be vertical. geological Any deviation from vertical is not expected to have a material effect on geological understanding structure as the average drillhole depth in the dataset is 65m with the deepest coal intersection of 131m (at 60m depth a 1° deviation would produce a horizontal deviation at the end of hole of 1m with negligible vertical exaggeration). The majority of the deposit presents a shallow seam dip between 5° – 15°. Vertical drilling is considered to be the most suitable drilling method of assessing the coal resource on the Denniston Plateau. Sample Stringent sample preparation and handling procedures have been followed by BRL. Ply samples security are collected and recorded from drill core, bagged and placed within a locked chiller prior to being dispatched for analysis. It is not considered likely that individual coal samples face a risk of theft or sabotage as coal is a bulk commodity with little value for small volumes of coal from drill core. **Audits or** BRL has reviewed the geological data available and considers the data used to produce the reviews resource model is reliable and suitable for the purposes of generating a reliable resource estimate. Results of a duplicate sample testing program comparing SGS and CRL results for ply assays have shown a strong correlation with no laboratory bias. Senior geologists undertake monthly audits of the sample collection and analysis.

### Section 2 Reporting of Exploration Results

Criteria	Commentary		
Mineral tenement and land tenure status	BCL owns and operates a nu Plateau, northwest of Westpor	t, New Zealand.	tion and mining permits on the Denniston  ments on the Denniston Plateau:  Expiry  23/06/2022  14/05/2017  14/05/2015
	Mining Permit 41274	Coalbrookdale	29/05/2035
	Mining Permit 41455	Cascade	14/05/2017

Exploration Permit 40591	Whareatea West	19/12/2015
Exploration Permit 40628	Buller	10/01/2015
Coal Mining Licence 37161	Sullivan	31/03/2027

- BRL have submitted an application for a subsequent Mining Permit to replace EP40591 and it is reasonably expected that this permit application will be granted.
- An appraisal extension application (AE) for EP40628 and an extension of duration for MP41332
  have been submitted to NZP&M and the applications are currently being processed. It is
  reasonably expected that these permit applications will be granted.
- A new Exploration Permit application is currently been processed by NZP&M (application 60520).
   This permit application cover areas that were formerly held under EP 40628.
- The Denniston Plateau Resource Model covers the Sullivan Coal Mining Licence 37161 and Ancillary Mining Licences 37161-2 and 37161-3. These three tenements were owned by Solid Energy NZ Ltd (SENZ) and were purchased by BRL in 2018.
- A royalty payment to the Crown is payable on all coal mined from the Plateau at a rate of \$2 per tonne.
- The acquisition of the Coalbrookdale permits includes a life of mine royalty based on a fixed percentage of FOB revenue.
- The majority of the land on the Denniston Plateau is Crown land administered by the Department of Conservation as Stewardship Areas (Part V Section 25 Conservation Act 1987). These areas are managed to protect the natural and historic values of the region.
- An access arrangement for the Escarpment project was granted by the Minister of Conservation in May 2013.
- Coal Mining Licences confer access rights and land use consents to the Licence Holder.
- Bathurst was granted resource consents for the Escarpment project by an independent panel of commissioners representing the local councils in August 2011. These resource consents were then the subject of a number of appeals. The final consents were granted in October 2013.
- Production from Escarpment began in 2014 and the mine was placed in care and maintenance in May 2016.
- The intent of the company is to continue to compete for other markets for this high quality coal and the company is continuing to develop plans for the export operation.

## Exploration done by other parties

- Historic geological investigations and reports for Denniston exist, covering much of the past 125 years.
- The Historic drilling database includes the following drillholes compiled from the historical data records.

Table 1 Table listing historic drilling dataset.

Years	Agency	Range of Collar ID	# Holes	Drilling Method	# Holes in structure model	# holes in quality model	# holes with Geophysics Available
Multiple	Various	200 - 254	49	Various	36	1	0
1948 – 1950	State Coal Mines	525 - 569A	47	Rotary wash drill	44	32	1
1950 – 1951	State Coal Mines	750 - 895	7	Rotary wash drill	5	3	0
1957 – 1961	State Coal Mines	916 - 984	20	Rotary wash drill	16	2	0
1975 – 1978	State Coal Mines	1070 - 1142	23	NQ triple tube core/open hole	20	12	0
1984 – 1986	Applied Geological Associates (AGA)	1270 - 1495	21	Open hole CSR and triple tube core	16	8	14
1997	Solid Energy NZ Ltd	1509 - 1512	4	PQ wash drill and triple tube core	2	2	4
2005	Eastern Corp	CC01 - CC07	7	PQ wash drill and triple tube core	2	1	1
2005 – 2006	Eastern Corp/ Restpine	WW01 – WW11	11	PQ wash drill and triple tube core	11	9	8
2007	L&M Coal	DEN01 – DEN05	5	HQ wash drill and triple tube core	5	4	4
2008	L&M Coal	DEN01A – DEN09	8	PQ wash drill and triple tube core	5	4	4
2009 – 2010	Eastern Corp	CC08 - CC12	5	RC	3	2	0
2009 – 2010	L&M Coal	DEN10 – DEN18	11	PQ wash drill and triple tube core	11	5	6
2010	L&M Coal	Various	3	Trenches	3	3	0

All historic data has been checked and validated against original source documents by L&M,
 Golder Associates (NZ) Ltd and again by BRL staff post acquisition of the project. Where data

#### Criteria Commentary was deemed unreliable it was removed from the relevant resource model dataset. Modern drilling completed by SENZ in the Sullivan Licence has been extensively validated before incorporation into the Resource model. SENZ used systems and processed in data capture that are very similar to those employed by BRL. Geology The project is located in the Buller coalfield, New Zealand. The Denniston Plateau is a north west dipping plateau bounded to the west by the Papahaua Overfold/Kongahu Fault zone, and to the east by the Mt William Fault. The defined resource is contained within the Eocene aged Brunner Coal Measures. The coal measures consist of a fluviatile sequence of fine to very coarse sandstones, siltstone, mudstone and coal seams. The deposit generally has a single extensive seam with some localised splitting of the seam. The coal thickness can be up to 12m but generally averages 4-5m vertical thickness. The dip of the plateau reflects the dip of the coal bearing sediments with localised exposures of basement units at structural highs and within incised gullies. Little to no Quaternary deposits or soils overlay the Brunner Coal Measures with overburden generally around 40-50m. A strong trend in coal rank exists across the deposit with coal rank increasing from east to west. Drillhole Table 2 Table listing modern drilling dataset. Information Agency Range of Collar ID **Drilling Method** # Holes in # Holes in # holes with structure quality model model Available 2010 - 2012 Rochfort Coal WW12 14 PQ OH and 13 WW25 Triple tube Core 2011 - 2016 Buller Coal 244 215 206 156 PQ OH and **DEN263** Triple tube Core 2011 - 2013 CC13 - CC46 HQ/PQ OH and 19 25 Cascade Coal 32 21 Triple tube Core 2012 Cascade Coa CCT01 2 2 2 0 CCT02 2012 - 2016 29 28 28 **Buller Coal** DENT01 Trenches 0 DENT29 2012-2016 59 0 Cascade Coal 50 2 CCB60 Production Blast 2011 SENZI 6000 series 46 PQ OH and 46 46 46 Triple tube Core 2013-2016 Buller Coal DENB001 184 Logged Production Blast 3 0 Exploration drilling results have not been reported in detail. The exclusion of this information from this report is considered not to be material to the understanding of the report. Data Exploration drilling results have not been reported in detail. aggregation The maximum ash cut off for the building the Denniston structure model was set at 50%, however methods some thin assay samples where ash is greater than 50% are included in the coal quality dataset due to the structure model including that interval within a coal seam. Resources have been reported with an ash cut-off of 45%. Relationship All exploration drillholes have been drilled vertically and the coal seam is generally gently dipping. between Therefore, seam intercept thicknesses are representative of the true seam thickness. mineralisation Dip metre and deviation plots are available for some holes. For those without this data it is widths and assumed that a vertical orientation is achieved and, as most coal intersections are less than intercept 100m in depth, any deviation from vertical would produce only a very minor effect to the reported lengths depth to coal and coal thickness. Diagrams The Appendix includes a number of plans that display the deposit geographically. Balanced Exploration drilling results have not been reported. This has avoided any issues with unbalanced reporting or biased reporting. The Competent Person does not believe that the exclusion of this comprehensive exploration data within this report detracts from the understanding of this report or the level of information provided. Other Three PQ holes have been drilled in the south eastern corner of the Escarpment permit. These substantive holes will be incorporated into the next model update.

Criteria	Commentary
exploration data	<ul> <li>Representative bulk samples have been collected and tested for:         <ul> <li>Coking behavior</li> <li>Material handling properties</li> <li>Washability analysis</li> </ul> </li> <li>BRL has completed and compiled a total of 56 coal quality composite samples over the Denniston Plateau.</li> <li>A number of bulk marketing samples have been completed.</li> <li>BRL has tested 954 overburden samples for overburden classification for acid forming and neutralising potential.</li> <li>The first three large diameter drillholes in a washability program for the western margin of Whareatea West have been completed and washability test work is currently being finalised.</li> </ul>
Further work	<ul> <li>A thorough coal washability testing programme for the western margin of Whareatea West is has been started. The completion of this program is and incorporation of the results into the resource and reserve model is planned.</li> </ul>

### Section 3 Estimation and Reporting of Mineral Resources

Criteria	Commentary
Database integrity	<ul> <li>All historic and legacy datasets have been thoroughly checked and validated against original logs and results tables.</li> <li>BRL utilises an Acquire database to store and maintain its geological exploration dataset.</li> <li>The Acquire database places explicit controls on certain data fields as they are entered or imported into the database such as overlapping intervals, coincident samples, prohibited sample values, standardised look-up tables for logging codes etc.</li> <li>Manual data entry of assay results is not required as results are imported directly.</li> <li>Drillhole and mapping data is exported directly into Vulcan from Acquire.</li> </ul>
Site visits	<ul> <li>Hamish McLauchlan (the Competent Person) has worked for the past 18 years in the Buller coalfield and on the Denniston project for the past 10 years.</li> </ul>
Geological interpretation	<ul> <li>BRL has confidence in the geological model and the interpretation of the available data. Confidence varies for different areas and this is reflected by the resource classification.</li> <li>BRL uses a multivariate approach to resource classification which takes into account a number of variables.</li> <li>BRL considers the amount of geological data sufficient to estimate the resource.</li> <li>Uncertainty surrounds the historic mine workings, both in the quality and quantity of coal extracted and surveying and positioning of underground workings. This is reflected in the resource classification</li> <li>BRL has used a total of 16 synthetic holes in the structure model primarily to constrain seam thicknesses around the edges of coal pods that have been worked by historical underground mines.</li> <li>A quaternary gravel deposit truncates the coal measures as an unconformity within the Cascade valley. This unconformity surface has been incorporated into the resource model. Some uncertainty surrounds the surface and therefore the coal resource within the area of influence. The quaternary gravel deposit only covers an area of ~2.5Ha or &lt; 0.1% of the total resource area, much of which has already been extracted at the Cascade opencast mine.</li> <li>Effect of alternate interpretations is minimal when taken as a portion of total resources.</li> <li>A small number of digital interpretation strings are used to constrain the coal structure grids within the model. These strings are primarily located near fault boundaries.</li> </ul>
Dimensions	<ul> <li>The main coal seam varies in thickness from less than 1m thick up to 14m thickness locally.</li> <li>Depth of cover varies from 0m at outcrop to over 150m at the eastern margin of the Mt William Fault. Inferred and Indicated resources include coal up to 130m below surface, while the measured resource includes coal up to 75m below surface.</li> <li>The deposit roughly covers a 6.5km by 4.5km area. The model is bounded by the Escarpment</li> </ul>

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### Commentary

Fault to the south, the Waimangaroa Gorge to the north, and the Mt William Fault to the east.

## Estimation and modeling techniques

- All available and reliable exploration data has been used to create a geological block model which has been used for resource estimation and classification.
- All exploration drilling data is stored in Acquire and exported into a Vulcan drillhole database.
- Mapping data is stored in Acquire and exported into Vulcan.
- A horizon definition has been developed and is used in the stratigraphic modeling process.
- The model is subdivided into four distinct domains, each separated by large faults that dissect the project area. Each area is modelled for structure and grade separately.
- Vulcan 9.0.2 is currently used to build the structure model. Grid spacing is 10m x 10m. This
  spacing was selected to be 1/5 of the minimum average point of observation spacing within a
  domain area.
- Vulcan's stacking method was used to produce the structure model. This method triangulates a
  reference surface (coal roof) and then stacks the remaining horizons by adding structure
  thickness using inverse distance.
- The maximum triangle length for the reference surface was set to 1,400m.
- Based on geostatistics for full seam thickness the maximum search radius for inverse distance is 1500m. The inverse distance power is set to 2, with maximum samples set to 8.
- Structure grids are checked and validated before being used to construct the resource block model.
- Vulcan 9.0.2 is used to build the block model and to grade estimate. The process is automated using a Lava script.
- The coal structure surfaces for each domain, along with LiDAR topography surface, quaternary unconformity surface, and other mining related surfaces for Cascade and Escarpment are used to build the block model. The block dimensions are constructed at 10m x 10m. Vertical thickness for coal blocks is 0.5m, whilst overburden blocks are set to 5m maximum thickness.
- Overburden characterisation for AMD purposes is modelled in a separate estimation step utilising the same stratigraphic structure grids.
- Grade estimation is performed utilising Vulcan's Tetra Projection Model. The main seam, and
  two discontinuous rider seams in each domain is estimated for ash, sulphur, air-dried moisture
  and in situ moisture. Volatile matter, crucible swell index, and calorific value are estimated on the
  ash pass.
- Geostatistics have been performed on the coal quality dataset to examine and define the
  estimation search parameters for each variable. The maximum search radius is set to the
  maximum range of influence found in the semi-variogram for each variable.
- Grade estimation is computed using an inverse distance squared function.
- Various methods have been used to check the validity of the block estimation. This includes
  manual inspection of the model, QQ plots of the model qualities vs coal quality database and
  other comparison tools.
- Some mining reconciliation has been completed on the resource model to examine model accuracy within the Cascade and Escarpment mining areas. To date, the results are within the bounds of expected variability based on resource classification used and mining rates. No other bulk reconciliation has been completed.
- Resource tonnages within the model have been discounted where the resource falls within an
  area of historic underground workings. The primary mining method utilised historically on the
  Denniston Plateau is bord and pillar mining. Some extraction using a water based coal extraction
  (hydro mining) when pillaring has also taken place. Historic extraction rates are estimated using
  mining extraction reports, interviews with miners, underground mine plans and tonnage reports.
  These factors were used in the resource classification confidence and for depleting the resource
  tonnages.
- Behre Dolbear Australia Pty Limited (BDA) notes that Bathurst has adopted a procedure over old workings of discounting the estimated resources to account for the depletion of coal from underground mining and due to possible structures not identified by drilling. Based on reconciliations from mining to date at Takitimu and Cascade, this approach has been established as a reasonably reliable, if somewhat conservative, method of estimating resources where there

Criteria	Commentary
	are clearly areas of depletion. BDA accepts that this appears to be a reasonable approach but
Moisture	<ul> <li>cautions there will be areas where the resources may differ from the estimates.</li> <li>Resource tonnages are reported using natural moisture, calculated from air-dried relative density, air-dried moisture and in situ moisture using the Preston Sanders equation.</li> <li>Block air-dried density is calculated from the block air-dried ash value using the ash-density relationship derived from the project dataset.</li> <li>A fraction (&lt; 0.1%) of blocks were not estimated for moisture and have been assigned average values based on the permit in which the block is located.</li> </ul>
Cut-off parameters	<ul> <li>Structure grids have been developed based on a 50% ash cut-off. Some higher ash samples are retained within the coal quality dataset to allow simplification of the seam model especially in Whareatea West where higher ash partings become more abundant.</li> <li>No lower cut-off has been applied. There is an inherent minimum limit to ash samples in modern results due to a laboratory detection limit of 0.17%. Ten modern ply samples fall below this detection limit, while a further 62 historic ply samples have ash values at or below this limit.</li> <li>Coal resources are reported down to a seam thickness of 0.5m (one block) with an ash cut-off of 45%.</li> </ul>
Mining factors or	<ul> <li>Minimum seam thickness is set at 0.5m or one block in height. Ash cut-off of 45% is used.</li> <li>No other mining factors such as strip ratios, mining losses and dilutions have been applied when</li> </ul>
assumptions	<ul> <li>developing the resource model.</li> <li>Recent Whittle optimisations undertaken by Golder Associates (NZ) Ltd indicate that the majority of the resource is economically recoverable at present using standard opencast mining methods. The remainder (&lt;5%) of the resource would become economically viable if coal prices return to the high prices of the last five years.</li> </ul>
Metallurgical	<ul> <li>BRL's current understanding of coal washability and yields on the Denniston Plateau has driven</li> </ul>
factors or assumptions	<ul> <li>the determination to use a 45% ash cut-off for reporting resources within the project area.</li> <li>No other metallurgical assumptions have been applied in estimating the resource.</li> </ul>
Environmental factors or assumptions	<ul> <li>Open pit mining and coal transport will be conducted amid environmentally and culturally sensitive areas. The proposed mining sites are a likely habitat for endangered snail and kiwi species. High rainfall rates, acid-generating overburden and historical acid mine drainage are all concerns that have been addressed.</li> <li>Mining within the Escarpment permit has all necessary approvals in place. Similar environmental values occur within the remainder of the Denniston Plateau. It is assumed that any constraints imposed on BRL in terms of environmental protection will not be prohibitive to economic resource extraction.</li> <li>No other environmental assumptions have been applied in developing the resource model.</li> </ul>
Bulk density	• A total of 580 relative density (air-dried) sample results are available for the Denniston project
	<ul> <li>area.</li> <li>The samples are distributed throughout the project area and the sample set covers a complete range of ash values from &lt;0.17% to 93.5%.</li> <li>From this dataset an ash-density curve was generated with a co-efficient of determination of R²=0.9869.</li> <li>After grade estimation, density was then calculated using the block ash value and the derived density equation.</li> <li>An in situ density value was then computed using the Preston Saunders method.</li> </ul>
Classification	In situ moisture determinations have been collected from drill core and from bulk samples.      PRI alongition recognition and the sample of the sample
Classification	<ul> <li>BRL classifies resources using a multivariate approach.</li> <li>Coal resources have been classified on the basis of geological and grade continuity balanced by relative uncertainties surrounding historic underground extraction and proximity to faults.</li> <li>Closely spaced drilling with valid samples increases the confidence in resource assessments.</li> <li>The confidence is reduced by:         <ul> <li>A block being within an underground worked area due to extraction rate uncertainty.</li> <li>A block being within 20m of an underground worked area due to uncertainty with historic survey of the workings and georeferencing of mine plans.</li> </ul> </li> </ul>

Criteria	Commentary
	<ul> <li>A block is in an area of steep structure dip, usually in areas of large faults.</li> <li>A block lies within an area of thin or splitting seam resulting in uncertainty of geological continuity.</li> <li>If an area is within an area worked by historic underground mines the resource is considered as Inferred as a minimum.</li> </ul>
Audits or reviews	<ul> <li>A comprehensive internal review of the resource model has been carried out by BRL. The 2018 Resource Model represents a major update to the 2016 Resource Model and incorporates all the drilling and exploration data acquired since 2011.</li> </ul>
Discussion of relative accuracy/confidence	<ul> <li>BDA has reviewed the resource and reserve estimates and has visited the sites of all currently planned operations and the existing mines. BDA has examined the methodology used to estimate the resources and reserves and is satisfied that the processes have been properly conducted. The estimation methodology is generally in accordance with industry practice and BDA considers the estimates can be regarded as consistent with the principals of JORC.</li> <li>Statistical comparisons between the resource block model and the coal quality data set have been carried out and are within expected ranges. Techniques utilised include QQ plots and probability plots.</li> <li>Cascade mine utilised the Denniston resource model for mine planning and scheduling. Production reconciliation for the last 12 months of production showed that ROM coal production was more than 10% in excess of that modelled.</li> </ul>

### Section 4 Estimation and Reporting of Ore Reserves

### **Escarpment Domestic**

Criteria	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul> <li>Reserve Estimate was completed by Golder Associates (NZ) Limited.</li> <li>Escarpment Mine reserves are reported separately for Domestic and Export coal 2015. The domestic portion of reserves are reported by others and not covered in this Table 1, Section 4.</li> <li>A 3D block geology model generated by Bathurst Resources Limited (BRL) was used for in situ resource definition and supplied to Golder for the Preliminary Feasibility Study (PFS). Golder has relied on this information for the study and has not performed detailed model validation or model input checks. Golder considers the model to be reasonable and constructed using a robust modelling process.</li> <li>The model was depleted to account for areas where previous underground extraction has taken place, based on historic recovery factors described by BRL in Section 3 of Table 1 for Reporting of Ore Resources (JORC).</li> <li>Coal Resources (JORC).</li> <li>Coal Resources are reported inclusive of the Coal Reserves.</li> <li>The 3D block mining model that was generated using Vulcan™ software and included minimum seam thickness, mining losses and dilution.</li> <li>Pit design extents were established using standard Lerchs-Grossman pit design techniques and based on preliminary economic and geotechnical inputs.</li> <li>Mine design strips by bench were applied to develop a mine schedules and used as a basis for reporting reserves.</li> <li>Reserve estimates include consideration of material modifying factors including: the status of environmental approvals; other governmental factors and infrastructure requirements for selected open pit mining methods and coal transportation to market (per JORC Code 2012).</li> <li>Reserve tonnages have been estimated using a density value calculated using approximated inground moisture values (Preston and Sanders method). As such, all tonnages quoted in this report are wet tonnes.</li> <li>All coal qualities quoted are on an Air-Dried Basis (adb).</li> <li>Approximately 90% of total reserve coal tonnes require</li></ul>
	<ul> <li>Marketable coal tonnes are reported using an estimated total moisture content of 10% converted from in situ using ASTM D3180.</li> </ul>

### Criteria Commentary Site visits The Reserves Competent Person (CP) is Sue Bonham-Carter of Golder Associates (NZ) Ltd.. Ms. Bonham-Carter has visited the site numerous times since an initial visit for the Escarpment Extension Project (EXP) undertaken on 11 November 2013. Hamish McLauchlan, BRL, conducted the visit around the proposed mine area. The group viewed the upgraded access road to the existing Escarpment mine, existing access tracks and power lines in the EXP future expansion areas, areas for environmental consideration, and potential areas for ex-pit waste disposal sites. Study status The reportable Coal Reserve is based on a Pre-Feasibility Study (PFS) conducted in 2015 by Golder on behalf of BRL. The PFS assessed an updated Life of Mine Plan for the Escarpment mine and planned extension into the adjacent Whareatea and Coalbrookdale Blocks. The 2015 PFS included re-assessment of material modifying factors including production rate, economic assumptions, specifically coal sale price and development capital options analysis. Cut-off Minimum seam thickness is set at 0.5m or one block in height in 3D resource block model. parameters Mining factors A key project assumption is the use of fit-for-purpose coal processing and transport infrastructure that already exists in the Buller coalfield, reducing the requirement for BRL to invest in new assumptions

- infrastructure. This infrastructure has sufficient excess capacity which could be utilised by BRL for processing and transport of Escarpment and Whareatea coals at the rates planned in the PFS study.
- The mining method proposed is standard small scale diesel powered truck-excavator operation. This methodology is consistent with those currently used at the Escarpment mine and neighbouring BRL Cascade operations as well as other operating mines in the vicinity.
- Modifying factors were applied in the mining block model taking into account:
  - Loss and dilution assumptions at each seam interface (roof and floor).
  - Minimum mineable thickness.
  - Minimum separable parting thickness.
  - Previous underground (UG) extraction estimates and surface mining recovery assumptions.
  - Contaminated coal production assumptions (wash plant feed proportions).
  - Coal wash plant performance (recovery).
- Coal quality estimation and dilution and loss adjustments were incorporated in the block model. Run of Mine (ROM) coal was separated into face (clean) and wash coal products. Clean ROM coal will be trucked to a proposed BRL operated rail siding located approximately 1.5km southwest of the township of Waimangaroa. Mining horizons were modelled in two passes; one for Clean (bypasses the wash plant) and one for Wash.
- Underground factors were applied in the mining model using triangulations based on digitised historic plans of the underground and surface workings. BRL supplied this historic data to Golder. UG factors applied were as follows:

Workings Type	UG Extracted Rate (%)	Mining Loss (%)	Mining Contamnated (%)	Mining Dilution (%)
Unworked				
First Worked	35	10	15	7
Second Worked	53	10	24	8
Hydro Worked	73	5	22	11

Surface mining modifying factors and their values:

Mining Factor	Model Value (in m)	Description
Roof Loss	0.15	Coal lost at the seam roof during cleaning
Floor Loss	0.15	Coal left in the floor at the end mining
Roof Contamination	0.25	Coal contaminated (coal mixed with waste) at roof

Criteria	Commentary
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Floor Contamination	0.25	Coal contaminated (coal mixed with waste) at floor
Roof Dilution	0.05	Roof stone left behind by cleaning and included in mined coal
Floor Dilution	0.10	Floor stone mined with the coal

- Plant Feed Tonnages were calculated by removing a percentage of the tonnes on the basis that a proportion of dilution/coal is rejected by grizzly and breaker. 20% of the dilution was assumed to be removed and 2% of the coal was assumed to be lost.
- Plant Feed qualities were adjusted to reflect the above coal and dilution losses.
- Product Tonnages were calculated using two linear Coal Washability yield relationships based on feed ash quality, as follows:
  - Face Wash Feed Coal Product Yield = 95.8990 (1.1497 \* Plant Feed Ash); and
  - Contaminated Wash Feed Coal Product Yield = 93.5218 (1.1196 \* Plant Feed Ash).
- Product ash was calculated using a relationship for ash beneficiation by feed type:
  - Face Coal Product Ash = max (9.5140 \* (2.7182818~(0.0121 \*Plant Feed Ash)),5.60).
  - Contaminated Coal Product Ash = max (3.2410 \* (2.7182818~(0.0245 \* Plant Feed Ash)),3.43).
- Product swell (CSN) was calculated using separate CSN vs. product ash relationships for each area (Coalbrookdale, Escarpment and Whareatea), provided by BRL by area and further limited to a maximum CSN by defined boundaries interpreted by BRL.
- RoMax was calculated using a linear relationship between RoMax and the Volatile Matter (% dmmsf) that has been developed by BRL as follows:
  - Product RoMax = -0.042 \* Product Volatiles (dmmsf) + 2.4885
  - Product CV estimated by area based on relationships for:
    - o ESC, 35<vm<40: cv\_ad = -0.3817\*as\_ad + 34.717
    - o WW, vm<30: cv\_ad = -0.4235 \* as\_ad + 37.04</p>
- All other qualities were based on weight averaging with stated assumptions for combination and/or separation of materials (e.g. breaker loss 2% coal and 20% of diluent material).
- Plant yield and product ash calculations are consistent with feasibility level assumptions for the currently operating Stockton processing plant which operates with similar, but not the same, types of coal from within the same coalfield.
  - Whareatea West in particular has a significant amount of high ash coal requiring processing (92% of total) and is high rank. Since much of this coal has high inherent ash (as opposed to high ash due to dilution) and the washability of this coal has not been adequately characterised, this is a considered a significant project risk. Further coal washability testing will be required to properly assess the value of the coal within the areas of interest.
- Lerch Grossman (LG) pit optimisation techniques were used to generate pit shells based on preliminary economic and geotechnical inputs in March 2015. The optimisation considered all resources in the model within the BRL controlled permit boundaries and was constrained by pertinent environmental considerations. Based on a blend optimisation study, the PFS assumed that BRL can blend all product coal (except minor amounts of high sulphur coal) to a specification that will achieve a benchmark Hard Coking or Semi Hard Coking price. The mine design for the base plan and schedule is derived from the optimisation results.
- Initial pit stages focused on lower strip ratio areas initially to generate higher cashflows early in mine life.
- The PFS base case targeted 750 thousand tonnes per annum (ktpa) of marketable coal product. At this rate the mine life is estimated to be approximately 20 years. A base schedule has been adopted that achieves this while developing both pits concurrently to target consistent coal quality from year to year. The schedule requires waste movement rates of up to approximately 8 Mbcm for approximately the first 10 years with a ramp up to full production over 3-4 years.
- Inferred Mineral Resources are included in the pit design shells and mine schedule, being 21% of total. Initial mining stages are designed to target measured or indicated resources. The economic model was tested with and without Inferred resources and was found to remain economic without the Inferred resources (refer to the sub section entitled "Economic" below).

#### Criteria

### Commentary

Indicated and Inferred Resources within Life of Mine Plan are presented in the table below:

Total Scheduled	Indicated		In	ferred
(Mt)	%	(Mt)	%	(Mt)
23.4	38	8.8	21	4.8

- Waste disposal design assumed a material swell factor of 1.25, accounting for a degree of compaction is achieved for AMD (Acid Mine Drainage) control.
- Geotechnical assumptions for slope design were based on parameters derived for Escarpment mine design in the DFS by Golder in 2010, supported by results of a preliminary seismic assessment undertaken by Golder in 2013.

PFS Basis of Design criteria are presented in the following tables.

Engineered Land Fill (ELF)

Material Swell Factor	1.25 (assumes some degree of compaction for AMD control)	
Ex-pit ELF	Overall batter slope:	18°
In-pit backfill	Overall batter slope:	*18°to 28°

<sup>\*</sup> Slope angle varies depending on location and status (i.e. temporary or final)

#### Pit Wall Profiles

Horizon	Wall Profile	
	Bench Height:	15m
Overburden	Batter Slope:	65°
Overburden	Berm Width:	11.5m
	Overall wall angle:	39°
M2 Coom	Bench Height:	15m maximum
M2 Seam	Batter slope:	51°

 Rehabilitation requirements and methodology were presumed to be similar to those in the existing Escarpment Mine permit.

## Metallurgical factors or assumptions

- Approximately 90% of coal produced will require washing to make a marketable product.
- All coal requiring washing was assumed to be processed at the existing Stockton Coal Handling and Processing Plant (CHPP) located approximately 20km to the northeast and accessed via a BRL proposed new coal road (Figure 1 attached). The washed coal transport system comprises a combination of road and aerial ropeway from Stockton mine to the Ngakawau loadout facility for rail transport to the port.
- Processes used at the proposed CHPP are standard coal industry practice using proven technologies.
- Clean coal not requiring washing would be transported by road directly from the Denniston
  Plateau to a new BRL siding to be situated at Waimangaroa on the coastal flats. This approach
  allows for the use of existing infrastructure capacity within the region and reduces start-up capital
  requirements significantly for the project.
- Processing plant relationships for yield and product qualities were supplied to Golder by BRL and are based on limited samples only. The metallurgical data was developed from the Stockton CHPP washability curves and are consistent as those applied in the 2010 DFS. These have been assumed to be representative of the expected performance of a coal processing plant in the South Buller coalfield for the PFS. This remains a significant area of uncertainty, both with projected yields and resulting processed coal product qualities.
- No pilot scale test work has been completed for processing of Escarpment or Whareatea resources.
- Deleterious elements modelled included sulphur and ash. Concentrations are within the

#### Criteria

### Commentary

marketable range. Phosphorous was not modelled, but analyses indicate that this is low relative to other traded coals, consistent with coals produced from the nearby Stockton mine.

Rejects and tails were assumed to be disposed of within the adjacent Stockton facilities.

#### **Environmental**

- An Assessment of Environmental Effects (AEE) required under NZ environmental legislation, the Resource Management Act 1991 (RMA) was completed previously for the Escarpment Project with regulatory permits granted in June 2014. The Whareatea West and Coalbrookdale Blocks are considered to have similar effects but will require lodgment of a new AEE and new consents prior to development.
- Mining access from DOC was granted for the Escarpment Mine up to a buffer for Trent Stream on 23 May 2013. Whareatea, Coalbrookdale and Escarpment blocks west of Trent stream, and the new proposed coal transport road from Escarpment to the CHPP require access arrangements from the landowners.
- In 2017, a new coalition government was elected, which comprises the New Zealand Labour Party and New Zealand First with confidence and supply from the Green Party of Aotearoa. In early November 2017, the new government announced their opposition to the development of new mining projects on the conservation estate (land owned and administered by DoC). The Ministry of Business, Innovation and Employment (MBIE) are in favour of continuing to develop the mineral resources of New Zealand, which are largely situated on, and accessed via, land owned and administered by DoC. This situation has resulted in some uncertainty within the mining and associated industries.
- In 2020 the New Zealand government updated the National Environmental Standards for Freshwater regulations, designating the drainage of natural wetlands a non-complying activity. The new regulation increases consenting uncertainty for the Whareatea West mining area.
- BRL was assisted by several specialist consults in completing a suite of environmental and site
  management plans to meet conditions of resource consent for the Escarpment Mine Project.
  These plans are publicly available. Golder considers these documents to be relevant to expected
  methods and procedures that would be developed for EXP.
- Detailed design and comprehensive water management plans have been finalised. The planned access road upgrade has been completed. Development started in July 2014 but subsequently was largely put on hold in response to a market downturn. Minor stripping and initial water management development are ongoing.
- Required additional baseline studies and applications for permits and access have not be initiated. BRL plans to initiate these at the next study level if the project proceeds.
- In 2017 BRL acquired 100% ownership of the Sullivan CML where the ex-pit waste rock storage area is proposed.
- Overburden rock is potentially acid generating (PAG). Specific management requirements include monitoring, drainage infrastructure, capping and water treatment in order to meet expected regulatory requirements. BRL has completed an AMD Management Plan for the Escarpment Project in collaboration with specialist consults. This plan is presumed to be relevant for management to EXP.
- The project is considered to affect amenity, landscape and ecological values on the Denniston Plateau. High value areas were avoided in the PFS design as far as practicable in consideration of snails, kiwi and rare flora. These will require further consideration at the next study level. Consent conditions and mitigation of effects will require significant effort in progressive and end of mine life rehabilitation. This is expected to be similar to those imposed on the Escarpment project.

#### Infrastructure

- Access to Escarpment Mine has already been established and an upgrade completed as part of
  initial development to date. A new coal transport road must be designed and constructed from
  Escarpment ROM stockpile area to the CHPP site. The Denniston Stockton road will be an
  estimated 19.7km in length and constructed to accommodate up to 60t off-highway road trucks.
  Of this length, 7.0km of new construction will be required, and 12.7km will be either on Stockton
  mine haul roads (6.8km), or on upgraded existing access roads (5.9km).
- Allowance has been in project cost estimation for sustaining capital expenditure for fixed infrastructure owned by BRL.

#### Criteria

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- Electrical power:
  - EXP is near existing power line infrastructure (110 kV and 11 kV) owned by Transpower and Buller Electricity. Power requirement have been estimated based on the existing Escarpment Mine, with additional allowance for water management at the Whareatea Block and Sullivan North ex-pit waste disposal area.
  - The existing 11 kV supply to Mt Rochfort repeater is rerouted in two stages to accommodate the planned mining sequence in the WHW pit. Specific design and consultation will be required at next study level.
- Offices, ablutions block, workshop and store detail design for the Escarpment project was for a
  production rate of 500 ktpa. This design has been used and factored for the EXP 750 kpta base
  case for this project.
- Fuel will be stored in a single central location at Escarpment. The tanks will be supplied by a contracted supplier. Factoring of the Escarpment fuel island was applied for the EXP 750 ktpa case.
- Mining development includes waste and coal haul roads between elements, ROM, waste disposal and soil stockpiles.
- Explosive magazine is assumed to be supplied as part of an explosives contract.
- The West Coast has a long history of mining, labour, services and accommodation are readily
  available in Westport located 16km east north east or other small towns and hamlets located
  along the coastal strip.
- KiwiRail Holdings Ltd. operates the existing rail line on the coastal strip. Golder understands that the line has the capacity currently to meet the proposed EXP export coal production.

### Costs

- Annual mine operating costs and capital requirements have been estimated to reflect the project mine plan and production schedules. Capital and operating costs were estimated by accepted standard means for the PFS Escarpment Mine detail design, based a combination of factored costs, bench marking similar nearby operations, and quotations from suppliers.
- Coal transport costs were estimated as unit cost per tonne based on local contractor quote. The
  development cost of road extension from Escarpment ROM stockpile area to the CHPP was
  adapted from costs incurred on a recent previous upgrade of access road to Escarpment using
  Golder's local experience.
- Rail transport cost and Lyttelton port handling charges were based on a quote received from KiwiRail and the port authority and benchmarked with other nearby operations.
- Mining costs were estimated based on actual mining contractor costs from existing BRL operations at Escarpment and Cascade Mines, benchmarked with other operating mines in the region and supplier/contractor quotes.
- Water treatment and mine closure costs were estimated by factoring Escarpment costs completed at detail design stage. Treatment plants were assumed to be required for Escarpment, Sullivan and Whareatea West Block later stages.
- Post closure aftercare was assumed for the purposes of this study to be included in a bond required to be posted in favor of the West Coast and Buller District Councils as condition of consent and to DoC as condition of access arrangements.
- Four main royalties/levies were addressed in the cost model; Crown (New Zealand Petroleum and Minerals 2008), site specific rate of 1.40/t for hard to semi hard coking coal and 0.80/t for thermal coal; Mine Rescue and Energy Levy of 2.00 \$/t; a private royalty agreement with L&M Mining has been allowed for in the cost model.

### Revenue factors

- Refer to sub section entitled "Market assessment".
- Commodity and capital prices were quoted in New Zealand dollars (NZ\$).

### Market assessment

- Escarpment and Whareatea West Coal Resources have been designated a market product type on the basis of a boundary separating maximum vitrinite reflectance (RoMax) above and below 1.0%.
  - High RoMax coal (>1.0%) is assigned a hard-coking coal (HCC) benchmark price.
  - Low RoMax coal (<1.0%) is assigned a semi-hard coking coal (SHCC) price.</li>
  - All Whareatea West Coal Resources fall into the HCC category and most, but not all Escarpment Coal Resources fall into the SHCC category.

- Options to produce a single blended product from Escarpment and Whareatea West Coal Resources have been assessed. There is a high risk that a single-product Denniston blend would not be valued by the market as equivalent to a HCC, and that operational and infrastructure cost benefits would not offset lower price and other market risks.
- The option to combine and blend coal from Escarpment and Whareatea West with production from other West Coast producers offer advantages to EXP, primarily in terms of reduced market and revenue risk, as well as reducing required investment in coal processing and transport infrastructure by using available capacity in existing systems.
- Dunstone Coal Technology Pty Ltd, September 2015 provided analysis of the synergies of blending EXP coals with other West Coast coals as follows:
  - The metallurgical coals from the West Coast are well known, accepted in the international market, and as with most coals, have certain sub-optimal properties which impact the price and acceptance in some markets.
  - Currently two West Coast products, NZCC and NZSHCC are sold into international markets. The Escarpment and Whareatea West deposits generally have properties that are complementary to these products.
  - The addition of Whareatea West and Escarpment HCC coal to the NZCC blend would improve coking properties; increase RoMax; reduce sulphur, but with an increase in ash content. However, this product would still be seen as a medium ash coal in international markets.
  - Escarpment SHCC offers improvements to coal fluidity and sulphur relative to NZSHCC.
    The addition of Escarpment SHCC to the NZSHCC blend may achieve a possible lower
    grade hard coking coal classification as supplies of Australian high volatile matter hard
    coking coal are reduced with the closure of the Gregory mine.
  - Other quality characteristics such as the high proportion of vitrinite and favourable ash chemistry, including low phosphorous) are similar to the Stockton and other West Coast coals.
- Product moisture above 10% can be expected to be looked upon unfavourably by potential
  customers. A price penalty is expected for total moisture levels above 12%. Current performance
  of the Stockton CHPP indicates that moisture levels less than 12% for washed coal from
  Escarpment and Whareatea West should be achievable; however, this remains an area of
  uncertainty. Golder considers confirmation of the performance of this coal through the Stockton
  CHPP to be a high priority for the next level of study.
- World metallurgical coal supply currently exceeds demand and the commodity price is considered low. A long-term HCC coal price of USD150 per tonne has been used to assess project economics, consistent with RBC Capital Markets, Global Metals and Mining Q4 2015 Outlook. A long term SHCC price assumption of 80% of the HCC price has been used (USD120 per tonne).
- Total marketable coal production of 750 ktpa from Escarpment and Whareatea West, plus
  expected future production from Stockton is consistent with sales levels of recent years, and is
  within the transport and processing capacity of existing processing, transport and port
  infrastructure.

### Economic

- A discounted cashflow analysis was conducted to assess the potential reserves. An 8% after-tax discount rate was used for the analysis.
- The analysis only considered Measured and Indicated Coal Resources. The discounted cashflow
  analysis shows the project to be marginally economic with an NPV of \$2m. In this assessment,
  a zero benefit was assigned to Inferred Coal Resources and they were treated as a waste
  material. This indicates that the PFS design, although not optimal, is economic, and therefore
  supports the stated mineral reserve.
- In the PFS design, BRL has chosen to accept a risk that the Inferred Resources may not
  eventually be converted to Proven and Probable Reserves. This would reduce the margin on the
  project if the Inferred Resources do not materialise as planned.
- Analysis which include Inferred Coal Resources in the annual production schedule yields a project NPV of \$141m with an IRR of 15%.

### Criteria Commentary Sensitivity analyses have been undertaken for key input parameters including coal wash plant recovery, coal sale price, foreign exchange (FOREX) rate, mining and processing cost, and inclusion of Inferred Resources. The project profitability is sensitive to mining (due to the uncertainty in previous UG extraction) and CHPP coal recovery and coal sale price. The project profitability is sensitive to low eventual conversion rate of Inferred Coal Resource to Proven and Probable Reserves. Startup CAPEX is estimated to be \$39 million NZD. Life of Mine CAPEX is estimated to be \$90 million over the twenty-year project life. A 20% contingency is included in the CAPEX estimate. The FOREX rate applied is consistent with ANZ long range forecasts. The project is sensitive to CHPP performance assumptions which are based on limited sampling. Social Interested stakeholders considered include: Local communities. Ngati Waewae (local indigenous group with legal status, referred to as lwi in New 0 Zealand). Regulatory authorities West Coast Regional and Buller District Councils. West Coast Development Trust. Fish and Game New Zealand. New Zealand Petroleum and Minerals. 0 Friends of the Hill (local NGO interested in the project). 0 Kawatiri Energy Limited. New Zealand Historic Places Trust. 0 Department of Conservation. 0 L&M Mining New Zealand Forest and Bird and various other NGO groups. Transpower and Buller Electricity. There is an agreement in place to retain public access to Mt Rochfort repeater. The existing Escarpment Mine consent conditions include re-establishment of rivers and boulder fields to mimic previous pavement areas, reinstatement of previous 4x4 or other walking tracks impacted within the mining footprint. EXP is expected to be subject to similar consent conditions. These were allowed for in the economic analysis.

### Other

- Three primary project approvals required are:
  - o Mining permit under the Crown Minerals Act 1991.
  - Consents from the West Coast Regional Council and the Buller District Council under the Resource Management Act 1991 (RMA).
  - Land Access:
    - An access arrangement and concessions for activities from the Minister of Conservation in respect of activities on the DoC lands (BDA 2013).
    - Land not administered by DoC, and not owned by BRL, will also be subject to an access arrangement with the landowner.
- The project is located primarily on land within the Mt Rochfort Conservation Area that is administrated by DoC. The authority for access for the first stage of development was granted for the Escarpment MP area up to the Trent Stream.
- The Coalbrookdale area has an access arrangement in place for two underground mines and associated surface infrastructure. Additional access arrangements and concessions are required for the proposed surface mine expansion west of Trent stream, for Whareatea West and Coalbrookdale blocks.
- The proposed expansion also includes parts of the Coalbrookdale underground mine but excludes the Coalbrookdale Fanhouse and associated public track listed as Category 1 with the NZ Historic Places Trust.

### Classification

• The total proportion of Probable Coal Reserves which have been derived from Measured Mineral Resources within the EXP economic pit extents, is 46%. This is primarily attributed to the

Criteria	Commentary
Audito ou	<ul> <li>uncertainty associated with coal recovery estimates for the coal processing plant.</li> <li>Coal Reserve tonnages reported have been converted from Measured and Indicated Resource only. The PFS mine schedule includes some Inferred Resources within the economic pit limits This is considered reasonable because the economic analysis supports declaration of Minera Reserves. Refer to the sub section titled "Economic".</li> <li>The result appropriately reflects the Competent Person's view of the deposit.</li> </ul>
Audits or reviews	<ul> <li>No audits have been performed at the time of reporting the PFS results.</li> <li>A coal washability testing programme for the western margin of Whareatea West was started i 2020. The completion of this program and incorporation of the results into the resource an reserve model is planned by BRL.</li> </ul>
Discussion of relative accuracy/ confidence	<ul> <li>BT Mining (65% owned by BRL) currently operates the nearby Stockton Mine and also several mines elsewhere in the South Island (Takitimu, Coaldale and Canterbury Coal mines) supplyin domestic thermal markets. The conditions on the Plateau, stakeholder, regulatory, minin processes and environment are well understood.</li> <li>The reserve estimate is based on a robust resource and reserve modelling process. However the accuracy of the estimates should be validated by more detailed studies and is subject to risk as discussed below.</li> <li>Golder believes that assumptions made in the PFS are reasonable and achievable by a we operated and managed operations. Risks and uncertainties identified in the PFS should be use for the purposes of guidance in further feasibly studies and detailed design.</li> <li>The key risks and areas of uncertainty identified are:         <ul> <li>Uncertainty in future coal sale price, as well as historic market volatility.</li> <li>Potential for lower than estimated wash plant yields, particularly for Whareatea Wes which is considered a major risk. Sensitively analysis results show economic breakeve at 88% of forecast yield. Whareatea West coal washability and product ash levels require further washability testing programmes to confirm performance of this coal through the Stockton CHPP (ash, yield and moisture). Golder considers that further float sink test and reviews of plant design requirements should be undertaken as soon as is practical at this is expected to have a significant impact on project success.</li> <li>Higher than expected product moisture due to coal processing may result in penalties of shipping delays. Mitigation measures will depend on tonnages and the blending strateg at time of production.</li> <li>Estimated uncertainty for depletion from previous underground worked areas in Escarpment is +/- 10%. This correspondingly affects remaining coal quantity as well a quality estimates. Local historic pr</li></ul></li></ul>

- issues. The risk can be partially mitigated by void mapping and management, experience and knowledge gained from nearby operations. Reconciliation of coal recovery against the reserve model once operating is also key.

  O Possible reserves loss due to conditions of consent, buffer or standoff required along Escarpment plateau edge, Whareatea River, ecological or additional mine heritage areas (a 50m buffer applied from Category 1 areas, Coalbrookdale Fanhouse and public walking
- o Greater dilution than estimated due to presence of underground workings in Escarpment and high ash partings in Whareatea West, will require high capability coal winning operators and coal quality support team. Possible implementation of sophisticated coal quality modelling and GPS control systems may provide improved performance.

track, included in PFS).

The EXP project requires a number of approvals and agreements in order to extend the mine into the eastern extremity of Escarpment and into Whareatea West. Access agreements will be required to operate in the Coalbrookdale Mining Permit area and Sullivan CML, as well as agreements required for the development of coal transport infrastructure (KiwiRail siding near Waimangaroa and road to Stockton CHPP), in order to proceed. The PFS assumes that all agreements will be obtained. In 2020 the New Zealand

Criteria	Commentary
	government updated the National Environmental Standards for Freshwater regulations, designating the drainage of natural wetlands a non-complying activity. The new regulation increases consenting uncertainty for the Whareatea West mining area.  The PFS assumptions consider the experience from Escarpment Mine and have incorporated some aspects into the design process in order to reduce adverse impacts however failure of any one of these approvals impact projects ability to proceed, and potentially cause development delays, additional costs or other negative impacts to the project. The permitting process for the Escarpment Mine was a lengthy process.  Access to the Sullivan CML (currently owned by BRL) is key to allow a cost-effective waste disposal areas for the Whareatea West block.  The control of AMD and post closure water treatment requirements will be dependent on
	the effectiveness of material management and capping construction methodologies.
	<ul> <li>The pit limits are in many areas bounded by the coal outcrop. Mining on the escarpment edge will require careful planning and further geotechnical assessment.</li> </ul>

### Appendix A:



Figure 2: Location Plan

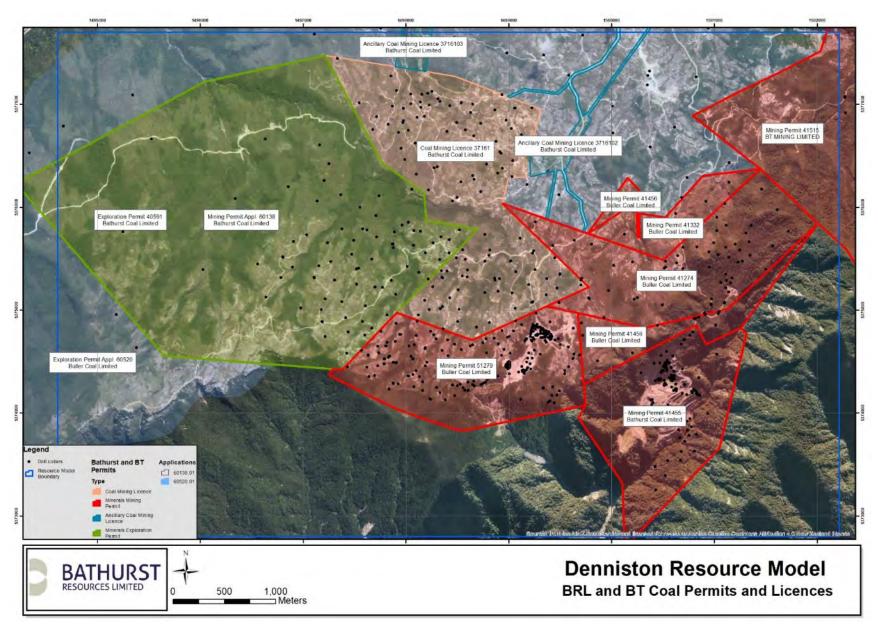


Figure 3: Denniston Plateau and the coal permits and licences within the resource model area

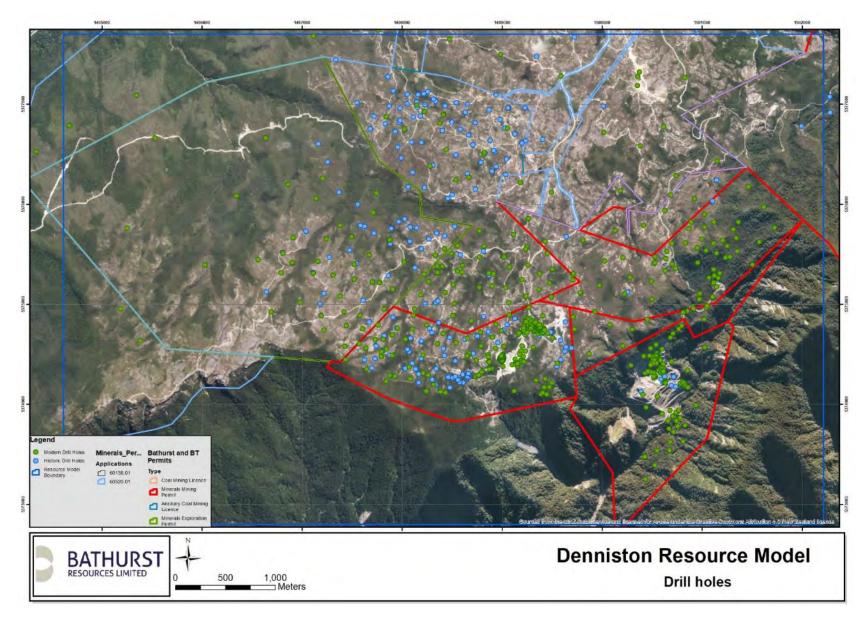


Figure 4: Plan showing the drilling dataset used to produce the resource model

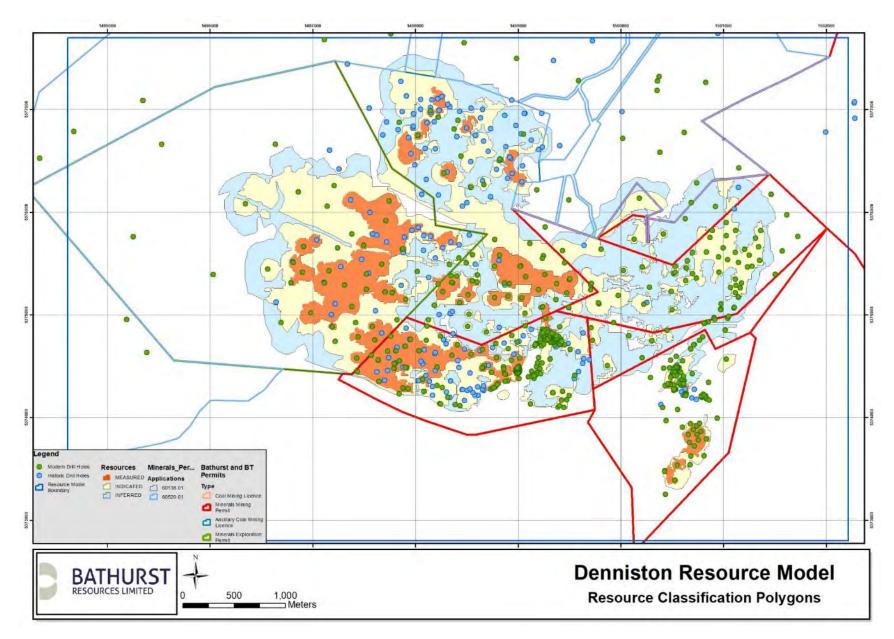


Figure 5: Plan showing the current Resource classification polygons

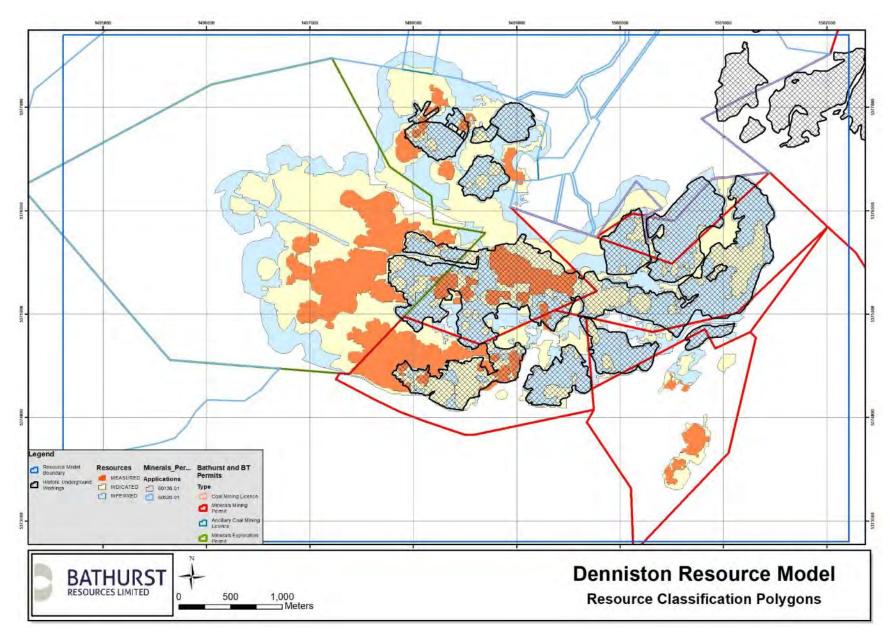


Figure 6: Extent of Underground Workings and 2018 resource classification

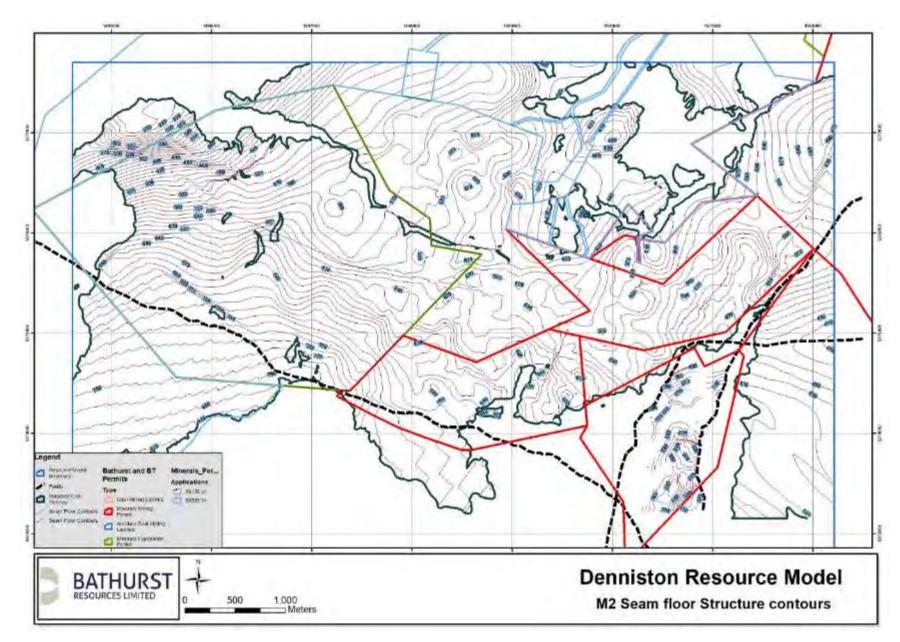


Figure 7: Plan showing the structure contours of coal seam floor

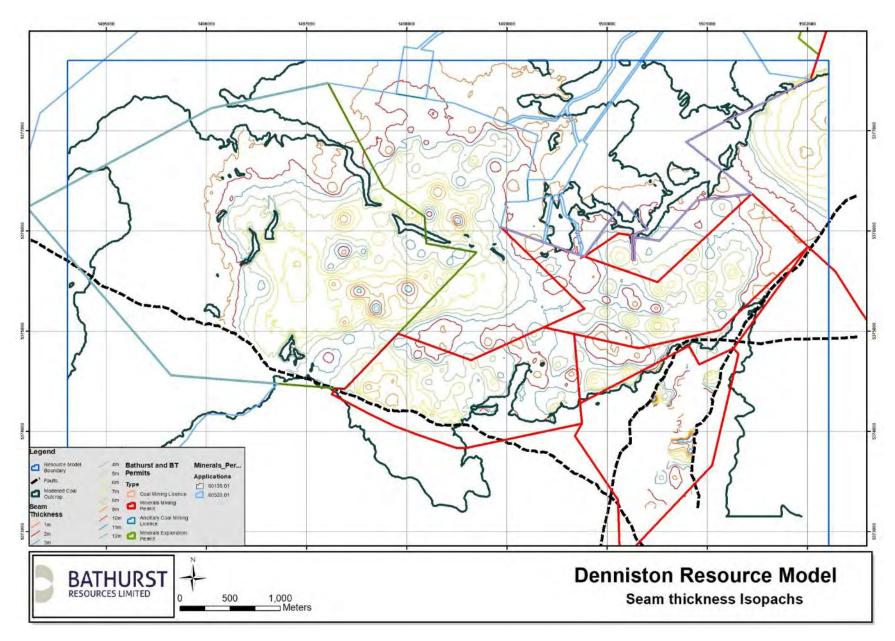


Figure 8: Plan showing full seam thickness contours over the model area

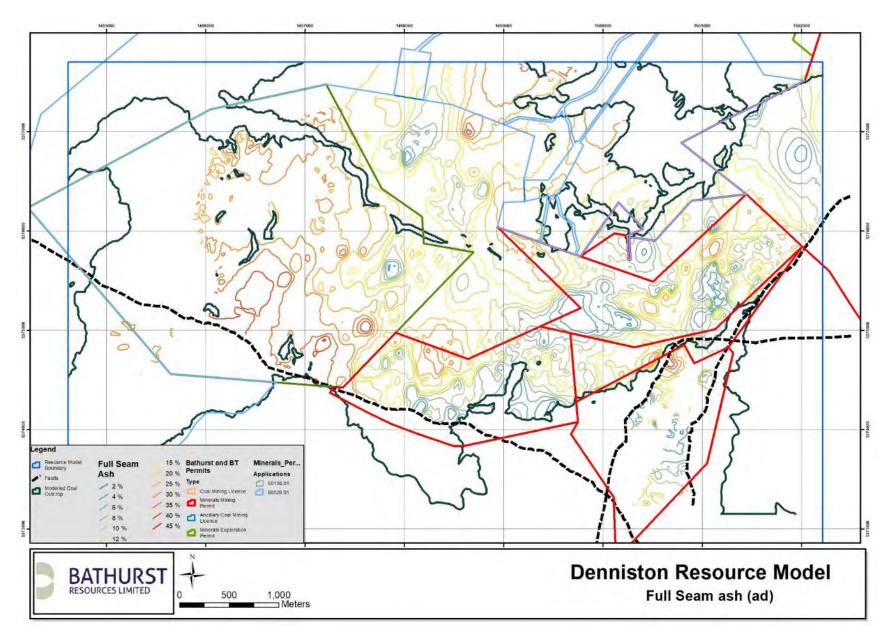


Figure 9: Plan showing in situ full seam ash on an air-dried basis as modelled over the deposit area

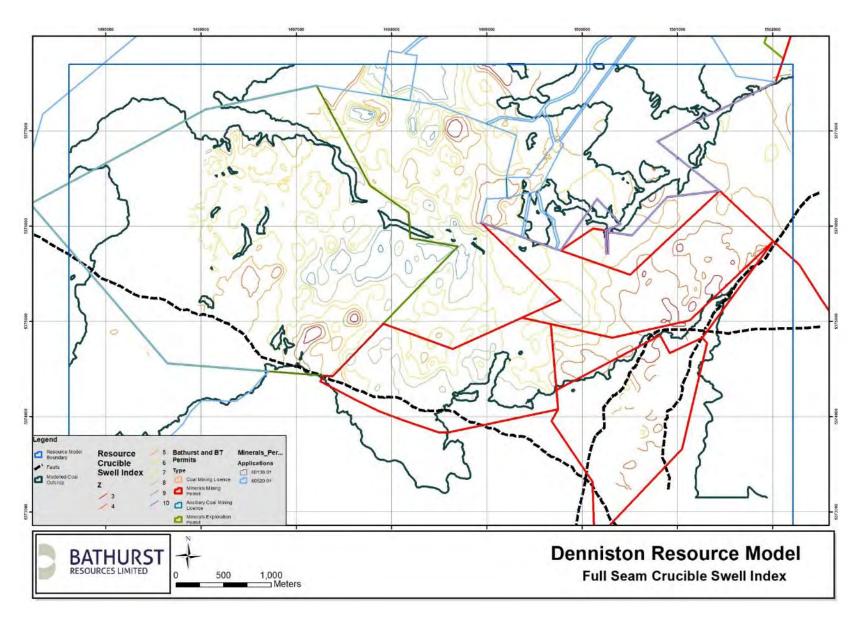


Figure 10: Plan showing the crucible swelling index (CSN) for coal across the resource

Note that these indicate in situ values not product CSN after beneficiation due to washing.

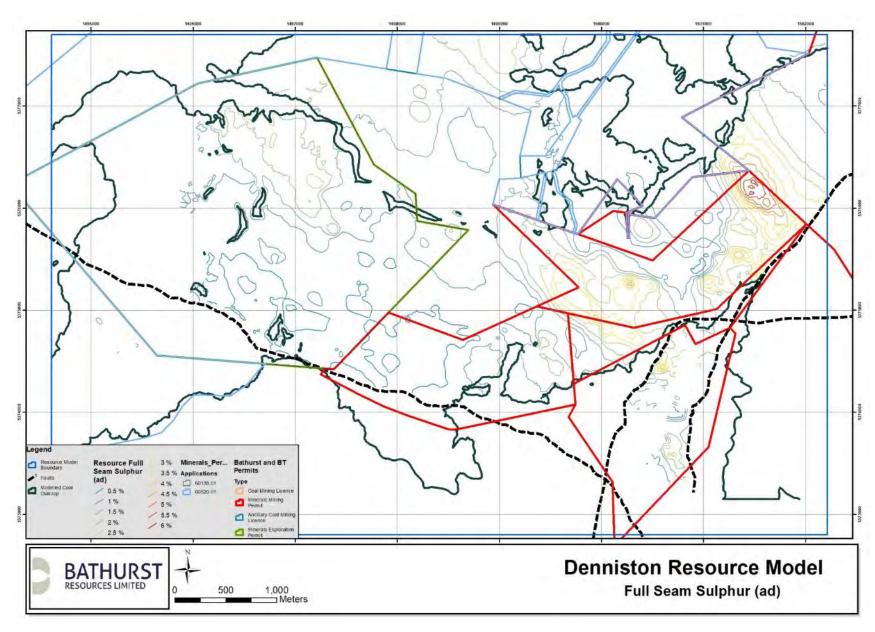


Figure 11: Plan showing full seam sulphur on an air-dried basis across the resource area

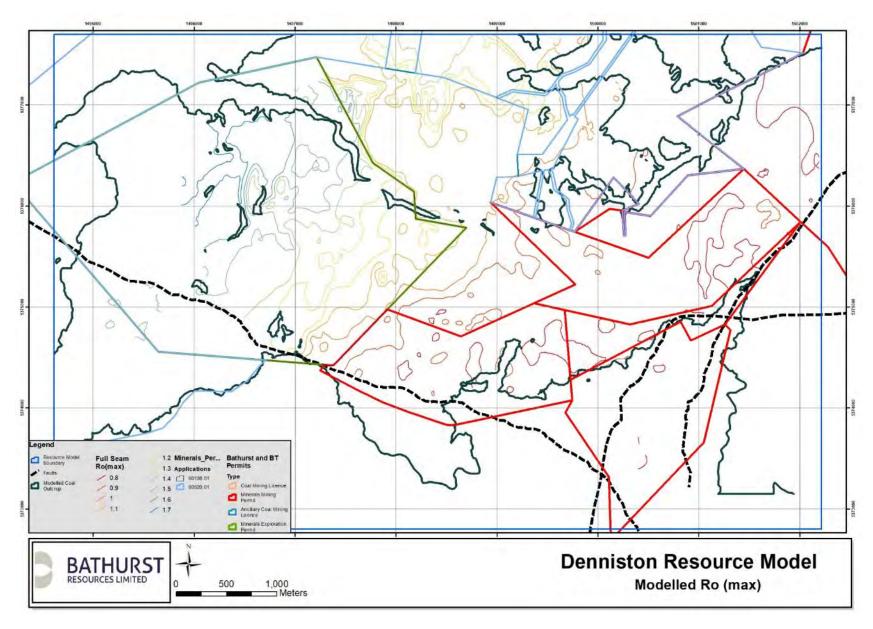


Figure 12: Plan showing the Ro (max) of coal. This shows the rank trend across the deposit

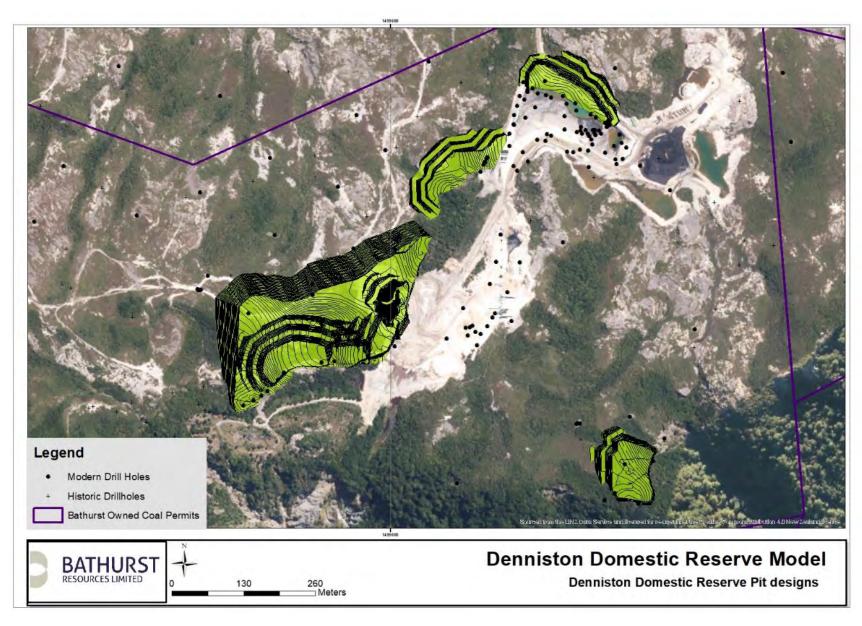


Figure 13: Escarpment domestic reserves pit shells

## JORC Code, 2012 Edition - Table 1 Report for Stockton 2020

### Section 1 Sampling Techniques and Data

logging.

у
d Core (DC) drilling sampling for coal quality analysis took place using PQ (85mm) or
nm) coring methods for coal seams. The entire core is retained for analysis.
pling is carried out under Stockton Specific protocols and QAQC procedures as per
best practice.
ited samples are created at the laboratory from individual plies that are thickness
d. These composited samples are compiled for additional coal property test work.
Circulation (RC) chip samples are collected via a cyclone attached to a reverse
on percussion drill rig. Sampling is primarily undertaken on 0.5m intervals through the
m (~6kg), and indicative 1m rock samples (~70g). The entire coal sample is retained for
cut samples have been taken in areas of accessible outcrop, with an aim to obtaining
ntervals representing 0.5m of the true thickness.
lity of drill core, RC chip samples, and channel samples are continuously monitored by
ogists.
campaigns of data acquisition have been carried out on the Stockton site over the past
has been undertaken using the following techniques:
iamond Core (triple Tube, PQ core).
pen hole (Tungsten drag bit, PQ size).
everse Circulation (PQ sized face sampling bit).
lade bit.
ill collars had open hole pre-collars.
of the drillholes have been drilled vertically due to the shallow dipping morphology of
sit and due to its close proximity to the surface. has been orientated.
d Core
d industry techniques are employed for recovering drilled core samples from drillholes.
obtained by PQ (83mm) diameter coring techniques, using triple tube operations, g good core recovery, averaging >80% over the entire drillhole (inclusive of non-coal
es). On average recovery of coal is 90%.
diameter is considered to provide a sample of sufficient volume to be representative of
u material and provides adequate sample mass to undertake the variety of raw coal tests
with composited sample analysis when required.
round conditions HQ sized rods, and therefore core was used to ensure that the drillhole
pleted without affecting the integrity of the drill core and or loss of drilling equipment.
le geophysics has been undertaken on most of the diamond core holes. A combination
hysical tools, including Density, Natural Gamma, Calliper, Sonic, Dimeter, Acoustic
, and Verticality have been run down holes. All tools are calibrated on a regular and
tic basis. All geophysical logging work has been conducted by a contractor (currently
ford). Sample interval and recovery recorded in the field by drillers is validated and
if required using geophysics during core logging and sampling.
illholes are geophysically logged, the geophysical logs are correlated/validated against
to determine core/chip recovery, while ensuring drill depths recorded in the field by the
re correct.
otography is undertaken on all diamond core.
Circulation Drilling Chips
samples from the reverse circulation percussion drillholes is recovered directly from the
ng a cyclone system. The entire sample interval is retained for coal quality analysis.
ng a cyclone system. The entire sample interval is retained for coal quality analysis. interval of 0.5m produces a sample between 5 - 7kg

#### Commentary

- RC generated samples with poor recovery (<3kg) are not submitted to the laboratory for analysis.
- Should there be poor recovery for the entire coal seam the hole is re-drilled if there is no specific reason for the poor recovery (e.g. presence of underground workings within the coal seam).
- BT Mining Ltd is satisfied that the RC holes have taken a sufficiently representative sample of the mineralisation and minimal loss of fines has occurred.
- Downhole geophysics has been undertaken on some reverse circulation drillholes. A combination of geophysical tools, including Natural Gamma, Calliper, Dipmeter, and Verticality have been run down holes. All tools are calibrated on a regular and systematic basis. All geophysical logging work has been conducted by contractor (currently Weatherford). Sample interval and recovery recorded in the field by drillers is validated and adjusted if required using geophysics after core logging and sampling. Once drilled drillholes are geophysically logged, the geophysical logs are correlated/validated against the recorded lithological logs to ensuring drill depths recorded in the field by the drillers are correct.

#### Logging

- All diamond core samples are checked, measured, marked up and finally photographed before logged in a high level of detail.
- All diamond core samples are geologically logged in a high level of detail down to centimetre scale. Intervals are logged for lithology, colour, weathering type, stratigraphy, texture, hardness, RQD and defects. Logging is conducted using a defined set of codes. All percussion drillholes chip samples are geologically logged as per the sampling frequency, with 1m samples used to define the non-coal lithologies (overburden), and 0.5m samples for coal and other non-coal lithologies surrounding or contained within coal seam partings. The geological logs are validated against laboratory results.
- Every discrepancy between the measured length of the core and the driller's length marked on the core blocks is investigated. Discrepancies are resolved by site geologists prior to sampling with the use of geophysical logs.
- The entire lengths of RC drillholes are logged. Where no sample was returned due to voids/cavities it is recorded as such.
- Drillholes that have been geophysically logged with a suite of tools (as described above) are
  analysed extensively to validate, confirm and correct coal seam depths. Validation and, if
  required, correction of the geological logs against geophysics is undertaken to ensure accuracy
  and consistency. Verticality, calliper, density and natural gamma tools are checked regularly with
  standard calibration assemblies. The density calibrations are performed routinely with blocks
  of known densities (aluminium and/or water).

#### Trench samples

- Trench samples have a basic geological lithological log with the lithology being validated against the coal ply result.
- All trench, diamond drill and reverse circulation data is captured in a standardised BT Mining Acquire database.

#### Sub-sampling techniques and sample preparation

#### **Diamond Core**

- No splitting of core is undertaken in the field or during sampling.
- Sample selection is determined in-house and is documented in the Stockton core sampling procedure. Clean coal core has been sampled to a maximum of 0.5m plies and adjusted for core loss and lithological variations.
- Associated high ash coal intervals and partings were sampled separately to assess potential dilution effects where they are <0.5m thick. Intervals with non-coal material (>50% Ash) are excluded from sampling.
- Samples are placed into pre-labelled plastic bags to ensure proper Chain of Custody, and then
  transported by BT Mining personnel to the laboratory for testing. The laboratory continues with
  the Chain of Custody requirements. Sample preparation is undertaken according to Industry
  Standards.

#### **RC Chips**

- No splitting of coal interval chips is undertaken.
- Non-coal intervals are sub sampled directly from the cyclone.
- Sample selection is determined in-house and is documented in a core sampling procedure.
   Associated high ash coal intervals and partings are sampled separately to assess potential

#### **Commentary**

- dilution effects where they are adjacent to coal seams. Intervals with non-coal material (>50% Ash) are excluded from sampling.
- Samples are placed into pre-labelled plastic bags to ensure proper Chain of Custody, and then
  transported by BT Mining personnel to the laboratory for testing. The laboratory continues with
  the Chain of Custody requirements. Sample preparation is undertaken according to Industry
  Standards.

#### Trench samples

No sub-sampling is undertaken with trench samples.

#### Other

 A laboratory generated repeat sample is submitted with every 20<sup>th</sup> sample submitted to the laboratory. This sample is provided a new sample ID with no reference to the original sample ID.
 The results of these repeat samples are reviewed monthly and any discrepancies investigation.

#### Quality of assay data and laboratory tests

SGS New Zealand Limited (SGS) in Ngakawau and CRL (ACIRL Australia and Newman Energy subcontracted for specific tests) laboratories are used to undertake physical and chemical testing and use Industry Standards for all coal tests and systematic QA/QC procedures for all work. Both laboratories hold accreditation by International Accreditation New Zealand (IANZ). The processes employed are considered to be appropriate for coal sample analysis. Results are reviewed in-house to ensure the accuracy of the data by a geologist and or a senior geologist. The laboratory has been inspected by the Company's personnel. Tests includes but are not limited to:

#### **Chemical Analysis**

- Proximate analysis (ASTM D5142-2004 (modified))
- Sulphur (ASTM D4239-04A)
- o Total Moisture (ISO 589)

#### **Ultimate Analysis**

- Carbon (AL038-in house)
- o Hydrogen (ASTM D3176-09)
- o Nitrogen (ASTM D3176-09)
- Oxygen (ASTM D3176-09 (by difference))
- Sulphur (ASTM D3176-09)
- o Forms of Sulphur (AS 1038 Part 11)
- o Chlorine (ISO 587)
- Ash composition (X-Ray spectrometry (Spectrachem))
- o Ash fusion temperature (ISO 540:1995(E))
- Trace Elements
- o Calorific Value (ISO 1928-1995)

#### Rheological and Physical Analysis

- Gieseler Fluidity (ASTM D2639-90)
- Dilatational (Audibert-Arnu) (ISO 349:1975)
- o Free Swelling Index (ISO 501:2003(E) D720-91(1999))
- Hardgrove Grindability Index (ISO 5074, ASTM D409-02)
- o Relative Density (AS 10382111-1994)

#### **Petrographic**

o Maceral Analysis (c/- Newman Technologies), Vitrinite Reflectance (ASTM D2798-99).

#### Other tests

- Washability testing as requested (AS 41561 using float-sink methods) (also used Boner gig shaker table process).
- 5% of all SGS analysed samples are sent to CRL for re-analysis, and then subsequently retested at SGS. The result of these repeats are analysed by the database geologist and the resource geologist, on a monthly basis. Additionally, 5% of all SGS analysed samples are retested by SGS, as part of their in-house QAQC process. These repeat test results are generally within a 5% of their original results. Results outside of set tolerances are investigated.

#### Verification of sampling and assaying

Most holes are geophysically logged, and verification of seam contacts is made through analysis
of the geophysics. Assessment of coal intersections are undertaken by a geologist. Geophysics
allows confirmation of the presence (or absence) of coal seams, accurate determination of
contacts to coal seams, density measurements are used to guide sampling and identify high ash

#### Criteria Commentary bands and or seam partings. Geophysical logs (dual density and gamma) are analysed extensively and used to validate and, if required, correct geological and sample interval logs to ensure accuracy and consistency. Coal ply results are provided by the laboratory and reviewed internally. No adjustments or calibrations are made to any coal quality data. In instances where results are significantly different from what was observed in geophysical logs or outside of local or regional ranges defined by previous testing, sample results are retested. Since 2006 all coal quality data has been directly submitted and stored in electronic format using Acquire SQL database software. Historical data has been validated and entered into the Acquire SQL database, from the original paper logs. These geological and geophysical paper logs are housed in the fireproof library in Westport. Historical data was transferred and validated against the current logging codes to ensure the data was valid. A limited number of twin holes have been drilled and returned acceptable duplicates of the original holes. Location of Stockton data is surveyed in Buller 1949 grid coordinate system in New Zealand with mean sea data points level datum (MSL). However, the Geoid correction for elevation is not undertaken due to the elevation of the mine-site (+150mm). All on-site survey data used in the resource estimation does not have the Geoid correction as well. All drillholes post 1998 are surveyed using real time kinematic GPS technology and are located within +/- 20mm vertically and +/- 10mm horizontally. Older drillhole collars were surveyed using conventional methods with an unknown precision. Historical underground workings plans are based off old hand drawn plans that have been georectified (in 2D only) by converting from cadastral links to the Buller 1949 geodetic grid. Topographic surfaces consists of "original", "cut", and "as-built" triangulations constructed from a combination of airborne LiDAR (accurate to within +/- 0.2m) collected for the whole of the Stockton site in June 2013, conventionally surveyed historical plans (unknown accuracy), GPS survey data (+/- 20mm) and GPS assisted laser scans using I-site laser scanner (+/-40mm). Drillholes with down-hole geophysics are surveyed for deviation with Weatherford verticality tool (+/- 15° azimuth and +/- 0.5° inclination). Data spacing Exploration drillholes are variably spaced (<75m to 150m) depending on target seam depth, and geological structure, topographic constraints, down-hole conditions due to underground distribution workings, and the location of other drillholes. Coal quality drilling is drilled on either a 15m, 20m, 30m or 40m grid, depending on structural and or coal quality complexity of the coal seam in the area. No sample compositing is undertaken prior to initial laboratory ply analysis. Should details coal analysis be required, compositing is undertaken at the laboratory on a length weighted basis. This drill spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate to support a JORC Code 2012 resource classification and is suitable for this style of deposit. Orientation of Majority of holes are drilled vertically, due to near horizontal coal seams. data in A small number of exploration holes have been inclined. The purpose of these holes were to relation to define significant geological structures and not for coal seam geometry and quality. geological No drilling orientation and sampling bias has been recognised at this time and is not considered structure to have introduced a sampling bias. Sample RC chip samples are collected in uniquely numbered pre-labelled plastic bags. Three to five security samples are then placed in a large plastic bag for delivery to the laboratory. Core samples are placed in uniquely numbered pre-labelled plastic bags. Three to five samples are then placed in a large plastic bag for delivery to the laboratory. Prior to submission to the laboratory, a standardised dispatch form is generated for each drillhole, within the Acquire SQL database software, which delineates the set of analysis to be undertaken and the logged sample numbers. Once samples and dispatch form are completed, the sample bags are validated and subsequently delivered to the secure laboratory sample receiving area by a BT Mining staff

member. Once received at the laboratory, the consignment of samples is receipted against the

Criteria	Commentary
	sample dispatch documents.
	<ul> <li>Any additional analysis is authorised by the site geologist.</li> </ul>
	• Sample residues are stored at the laboratory pending results and any possible repeat requests.
	<ul> <li>Sample security is not considered a significant risk to the project.</li> </ul>
Audits or reviews	<ul> <li>Integrity of all data (drillhole, geological, survey, geophysical and CQ) is reviewed by the site geologist before being used to model either structure or qualities.</li> <li>Periodic internal reviews are conducted, to verify that both core and chips are logged in a consistent manner. These reviews are done by the Competent Person.</li> <li>The BT Mining Acquire database was last externally audited in 2008 by Advanced DataCare. Suggested actions were reviewed and actioned where necessary.</li> <li>The BT Mining Acquire database is considered to be of sufficient quality to carry out resource estimation.</li> </ul>

## Section 2 Reporting of Exploration Results

	reporting of Exploration Results
Criteria	Commentary
Mineral tenement and land tenure status	<ul> <li>Stockton CML37150 is a coal mining license, which is due to expire on 1 April 2027, and covers the majority of the deposit.</li> <li>MP 52937 and 41810 mining permits are adjacent to the main CML37150. MP 52937 expires on 4 November 2030 and MP 41810 expires on 8 September 2024.</li> <li>BT Mining Ltd. has sole ownership of the operation, with ownership of the CML 37150 permit areas, and access rights to the Department of Conservation (DOC) owned MP 41810 and MP 52937.</li> <li>All operations at Stockton mine are currently undertaken within these CML boundaries.</li> <li>Royalties and Levies are applied to per tonne of coal produced.</li> </ul>
Exploration done by other parties	<ul> <li>Within the CML37150, Solid Energy Ltd undertook all exploration on the tenement from 1987 to 2017. However, there have been earlier periods of work that have contributed to the understanding of this Resource. These programs include early drillholes associated with mining dating back to the late 1800s through into the 1900s, with New Zealand Coal Resources Survey preforming additional drilling in the 1980s.</li> <li>All historic data was checked and validated by the site geologist, on inclusion into the current Acquire database. All data is coded on usability for resource modelling.</li> </ul>
Geology	<ul> <li>Coal resources on the Stockton Plateau are restricted to the Middle to Late Eocene aged Brunner Coal Measures (BCM). The unconformably overlies the Ordovician aged Greenland Group greywacke's and argillite's, which has been extensively intruded by Cretaceous granites and porphyry (Berlins Quartz Porphyry). Due to the stratigraphic nature of coal measures, the coal seams generally lie in a horizontal or sub-horizontal plane. The resource has a dip to the northeast at the northern end of the deposit and to east along the western margin. Folding and faulting through the coal seams can create localised changes in dips up to 80°.</li> <li>The Mangatini coal seams are the main coal seams of the Stockton deposit. The seams have been given the abbreviation M. There are the three seams M1, M2, and the M3. The M2 seam is the predominant seam over the deposit and splits into four segregated seams in places. The M1 seam is thin and discontinuous stratigraphically below the M2 and not considered for resource estimation. The M3 is a rider seam to the M2 however the seam is discontinuous and often not recovered during mining. The M3 is not considered during resource estimation.</li> </ul>
Drillhole Information	<ul> <li>No exploration results are reported, therefore there is no drillhole information. This section is not relevant to this report on resource and reserve estimations. Comments relating to drillhole information can be found in Section 1.</li> </ul>
Data aggregation methods	No exploration results have been reported for the Stockton deposit.
Relationship between mineralisation widths and	No exploration results have been reported for the Stockton deposit.

Criteria	Commentary
intercept lengths	
Diagrams	Diagrams can be found in the Appendix A for each of the following:  Location map  Map showing Land rights  Map showing Mining Permit  Geological QMap  Map showing drillhole type/distribution  Map of underground workings  Map of Resource Classification  Map showing M2 Ash distribution  Map showing M2 Sulphur distribution  Map showing M2 CSN distribution  Map showing M2 ROMAX distribution  Map showing M2 floor contours distribution  Map showing M2 apparent seam thickness
Balanced reporting	<ul> <li>No exploration results are reported, therefore there is no further exploration results to report. This section is not relevant to reporting resource and reserve estimations.</li> </ul>
Other substantive exploration data	<ul> <li>Bulk samples to attain specific marketing related data have been taken as and when requested.</li> <li>The different stratigraphic units and rock defects have been assigned various strength parameters based on a mixture of recent and historic laboratory test data (UCS, shear box and ring shears), empirical classifications (RMR, GSI and Hoek Brown) and back analysis of existing cut slopes. Downhole in situ geophysical measurements have been undertaken to compare the strength variability with actual laboratory test data.</li> </ul>
Further work	<ul> <li>Deposit is currently being mined.</li> <li>Close spaced grade control drilling will continue as mining progresses while additional exploration and near mining resource development drilling will be undertaken to define geological structures, seam structure and coal quality.</li> </ul>

## Section 3 Estimation and Reporting of Coal Resources

transferred into tabase, with in- lly entered into and stored in a odes to prompt lues, duplicate d total drillhole and validation dard before the the laboratory mat, saved to a e geologist. On not be adjusted gical database Data validation on routines. All illy. ced DataCare.
tabase, we lly entered odes to plues, dup detailed total drand validard beformat, save engelogical dat Data validaries por routing lly.

#### Criteria Commentary Suggested actions were reviewed and actioned where necessary. Site visits The Competent Person, Mark Lionnet, has a full-time role with Bathurst Resource Limited as the Export Project Manager with a high level of interaction with the Stockton geologist. Regular visits have been undertaken by the Competent Person. Geological There is sufficient confidence in interpretation of geological stratigraphy, structure and seam interpretation correlation/continuity though it is variable across the Stockton area. Mining activities supports a good confidence in the geological interpretation of the deposit. The data used in the geological interpretation included field mapping, drillhole data, core logging data, geophysical logs, sampling, coal quality laboratory testing and structural interpretations. Residual variability exists concerning geological structure along/within the major fault zones, resulting in a lower level of resource confidence. This variability will influence the local estimates rather than the global structural and coal quality estimates for these zones. **Dimensions** The Stockton resource area covers approximately 22.9km², a roughly rectangular shape up to 3.5km wide (E-W), and 8km long (N-S). Within this area all seams are exposed in the operating mine, with in situ coal between 0m and 50m below the original ground surface. Coal thickness varies considerably over the deposit, from 28m (areas with structural thickening) down to <0.5m (areas with coal seam poorly developed). On average the remaining coal resource has an average thickness of 8-10m. The M3 rider seam to the main M2 seams is on average 0.5m thick but can have local

# Estimation and modelling techniques

- Modelling has been undertaken using Maptek's Vulcan Version 7.5 and 8.2 software by a resource geologist experienced in its use, using a standardised set of validated automated scripts.
- 15,662 drillholes are utilised in modelling and resource estimation.

thicknesses of 3m.

- All valid drilling data, mapping data, together with a number of structural interpretations are used as the source data for creating the coal seam surfaces (grids).
- Grids for the coal roof and floor (including seam splits) are developed over the entire CML. These
  coal surfaces are modelled using a stacking algorithm with the coal roof of the predominant coal
  seam (M2) used as the reference surface. This process is repeated for six geological domains
  of the deposit to ensure that the coal seams are modelled accurately.
- The grids are created by using a triangulation algorithm resulting in a 10m x 10m grid. This methodology of creating grids is common practice for the estimation of coal deposits
- Block model extends from 321500mE to 327010mE and 710500mN to 719510mN and elevation from 300mRL to 1100mRL.
- A standardised block model schema has been used, with a standardised set of variables, with associated default values.
- The latest validated survey "original", "cut" and "as-built" surfaces and grids are used to create an empty block model, with 10m by 10m blocks with a minimum thickness of 0.5m (for coal seams). The parent block size (10m by 10m) is half the drill spacing to ensure the mineralisation is well represented by the blocks.
- The drilling database is used to create a set of 0.5m thick composites, which is then used to
  estimate the coal qualities for the blocks within the coal seams. Multiple estimation runs are
  completed to ensure all blocks are populated.
- All coal blocks have been estimated using the inverse distance methodology, with a power of 2, for the standard set of coal qualities (ash, sulphur, swell, inherent moisture, volatile matter).
- Coal Quality Estimation parameters used during coal quality estimation are:
  - Search ranges used are 150x150x0.5m and 500x500x1m.
  - Samples used are a minimum of 2 and a maximum of 8 in the first search radius, and a minimum of 1 and a maximum of 5 in the second search radius.
  - A maximum of 2 samples from any one drillhole is allowed.
  - Block discretisation of 4,4,1 was applied.
  - Using the Vulcan "tetra unfolding" methodology, along the modelled coal seam surfaces.
- Lithology of non-coal overburden, underburden and interburden blocks, are estimated using a probabilistic method, using the drillhole database. Once lithologies have been estimated, the

#### Criteria Commentary ash, sulphur, swell, inherent moisture, and volatile matter are estimated. Inverse distance estimation, with a power of 2, is used. Search ranges used are 60x60x1m and 200x200x1m. Samples used are a minimum of 1 and a maximum of 10. 0 Block discretisation of 4,4,1 was applied. Using the Vulcan "tetra unfolding" methodology, along the modelled structural seam surfaces. Where insufficient data drillhole data is available, then default CQ values are assigned to un-estimated blocks. At each stage of the process (initial data points, new surfaces, and final block model) the new data is validated back to the previous model, to ensure consistency. Standard Block model validation was completed using visual and numerical methods. No selective mining units were assumed in the estimate. Part of the deposit has been previously underground mined. A detailed review of the underground mine plans and production records produced depletion factors for underground mining panels. These factors were used in the resource classification confidence and for depleting the resource tonnages. Underground coal fires related to the underground workings have had impact on the coal quality and ground conditions. A detailed review of these fires and ground conditions have also identified areas with poor coal seam structural integrity (pillar collapse) and or have had their qualities altered due to the presence of fire. The factors have also been used to deplete and coal tonnage and or coal quality for the deposit affected by the presence of fires and or pillar collapse. Moisture All moisture values are reported on an air-dried basis, using air-dried ply results to estimated moisture. Inherent moisture is measured for all drillhole samples. Tonnages are estimated on a dry basis. **Cut-off** A minimum seam thickness cut off for all modelled seams is 0.5m as this is what is currently parameters considered as recoverable using open cast methods. A maximum ash cut-off of 25% has been applied to all coal seams except where seam continuity is required, which may include intervals with greater than 25% Ash. Coal with Ash <8% is considered "bypass" coal and does not require any further processing. Coal with Ash >8% needs to be processed through the company's Coal Handling and Processing Plant (CHPP). Coal tonnes are only reported from the M2 seam or its splits (no M3 and M1 tonnes are reported). All resources blocks have been limited to be within the 2018 Whittle pit optimisation revenue 2.0

# Mining factors or assumptions

This declaration reports on a long-term operating site.

factor (RF) pit shell.

- Selected mining method/s chosen from long term experience of local conditions.
- A mined-out factor is assigned to each block based on the current site topography, or if within a set of mined out/signed off areas.
- Geotechnical parameters for cut slope design were developed based on historical cut slope performance, slope back analysis and laboratory testing of material strength parameters. Slopes are designed to comply with a Factor of Safety that exceeds 1.2 with its related probability of failure and potential failure dimensions.
- Minimum recoverable coal thickness is 0.5m. Final coal recovery percentages have been calculated using the degree of previous mining history, adjacent waste material, expected contamination, and expected mining losses.

# Metallurgical factors or assumptions

- Contaminated coals from mining and/or from underground workings are processed via the company's Coal Handling and Processing Plant (CHPP) since 2010. The CHPP removes the dilatant material and a small portion of coal to provide a more saleable product. The plants performance has been routinely monitored since its inception.
- Although not included in the resource estimate, studies have been conducted on the properties
  of the coal pertaining to combustion potential, Ash fusion temperatures and Hardgrove
  Grindability Index.
- Small parcels of coal have been sent to customers for evaluation and test work.

#### Criteria Commentary Environmental There are a number of Resource Consents regarding land use, air, and water quality that must factors or be strictly adhered to for the Stockton site however these are unlikely to impact on the Mineral assumptions Resource Estimate. There are a number of lithological units exposed during the mining process which generate acid metal drainage. The water run-off across site is monitored and lime dosing is used at strategic sites to correct the water acidity. Due to high rainfall over the mine site the high content of suspended solid material is a concern to water quality. There is a series of drains and sumps that collect this 'dirty' water that allow for the settling of the suspended solids. Mined out areas are rehabilitated using a comprehensive system, which makes use of recovered soil, recovered vegetation, bio-solids, and dried grass. **Bulk density** The relative density value is calculated using the available ash-density data (268 samples) to define an ash-density curve. Non-coal units are assigned default density value based upon the lithology type. Classification The resource has been classified into the Inferred/Indicated/Measured status by analysing eight factors upon which the geological confidence is based. Presence of underground workings. Coal seam dip. Distance to nearest coal quality data. 0 Ratio of coal seam thickness to the number of coal seams. Distance to reliable roof contact. Coal seam thickness (where less than one metre). Estimation passes need to estimate. 0 Number of informing drillholes used. The Competent Person will review the results of the semi-automated resource classification process and will be manually adjusted where necessary and/or required. The input data is comprehensive in its coverage of the coal seams and does not miss-represent the in situ coal seams. The results of the validation of the block model exhibit a good correlation of the input data to the estimated grades. All resources are within the 2018 Whittle pit optimisation revenue 2.0 factor (RF) pit shell. The Competent Person has taken into account all relevant factors in undertaking this estimation and considers the estimate to be a true reflection of the current understanding of the deposit. Audits or Definitive Feasibility Reports (PAG L5) for the Coal Handling and Processing Plant and Millerton reviews Coal Resource have included external peer reviews of the geological databases and resource estimate methodology. No significant issues were identified in reviews. The database and geological resource model were also extensively peer reviewed internally by senior geologists and the Competent Person. Pre-Feasibility and Definitive Feasibility Reports for near deposits (Cypress and Mt William North) have included external peer reviews of the geological database. No significant issues were identified in reviews. Twin hole drilling programs have been undertaken to validate previous drillholes. During post mining reconciliation the drillhole ply results, and the associated estimated values, are compared to the mined coal to ensure that the drilling programs have been sufficient to predict the qualities of the mined coal. A geostatistical study undertaken by Golder and Associates into drillhole spacing was undertaken in 2006, that suggested grade control drillhole spacing should be on 15m or 20m grid spacing where coal quality parameters and coal geometry vary significantly. A review of the Stockton resource modelling process was undertaken by Palaris in 2013 as part of a Solid Energy New Zealand wide review. The BTM Acquire database was last externally audited in 2008 by Advanced DataCare. Suggested actions were reviewed and actioned where necessary. Discussion of Based on the data available, the degree of accuracy of this statement is considered high for the relative Stockton deposit. The process for calculation has used: BTM Standards and procedures, BTM Resource and Reserve Guidelines and the 2012 JORC Code along with industry best practice

Criteria	Commentary
accuracy/ confidence	where available to define the Resource estimates provided to confirm search estimation ranges and drillhole spacing for each resource classification.
	<ul> <li>Regular mine area reconciliations are undertaken and show an acceptable correlation between mined coal and estimated coal.</li> </ul>

## Section 4 Estimation and Reporting of Coal Reserves

Criteria	Commentary
Mineral	The Coal Resource estimates used are the Coal Resource estimates undertaken by the Stockton
Resource	resource geologist as outlined in Section 1-3.
estimate for	Coal Resources are inclusive of Coal Reserves.
conversion to Ore Reserves	The Coal Reserve estimates are for a long-term operating site.
Ore Neserves	• For the purpose of Reserve calculations, the mine is split into regions which are Millerton,
	Rockies, No2 South, A Drive, Mt Augustus, and McCabe's.
	<ul> <li>Drillholes are validated then coded to create a structural grid model using Vulcan™ software by</li> </ul>
	BT Mining Limited. This structural model forms the framework that a 3D block model is created from by the site geologists. The model includes topography, seam structure and coal qualities
	used for in situ Coal Resource delineation.
	<ul> <li>Coal quality values are estimated into the block model by BT Mining Limited. Coal Resources and Coal Reserves are derived from this model. The Company has robust and stable modelling processes modelling processes in place. Tonnages reported, model mining modifying factors</li> </ul>
	including surface and historic underground mining extraction, loss and dilution, fire affected, plant yields and economics have been reviewed and reconciled against actual performance.
	<ul> <li>A decrease in the previously reported Stockton Coal Reserves is primarily attributed to the</li> </ul>
	following changes:
	Depletion by surface and stockpile mining.
	<ul> <li>Pit design and mining plan changes following a pit optimisation study June 2018.</li> </ul>
	<ul> <li>Removal of some remnant blocks.</li> </ul>
	• The decrease in Coal Reserve tonnes was partially offset by an overall increase in stockpile coal
	tonnes following inclusion of A18 Fines after a successful Pre-Feasibility study was completed in April 2020.
Site visits	<ul> <li>The Competent Person for this Coal Reserve Statement is Ian Harvey, a full-time employee of BT Mining Limited based at Stockton.</li> </ul>
	<ul> <li>The Competent Person has almost 20 years' experience working at Stockton in various roles, including resource modelling and mine planning, as well as coal quality management and mine/market planning.</li> </ul>
Study status	Stockton mine is an operating mine.
•	Material Modifying Factors have been considered.
	The reported Coal Reserve is based on actual site performance, costs and mine plans that have
	been determined to be economically viable in the BT Mining cashflow analysis.
Cut-off parameters	<ul> <li>A maximum ash cut-off of 25% has been applied to all coal seams except where seam continuity is required, which may include intervals with greater than 25% ash.</li> </ul>
,	<ul> <li>Coal with ash &lt;8% is considered "bypass" coal and does not require any further processing.</li> </ul>
	<ul> <li>Coal with ash &gt;8% "wash" coal needs to be processed through the company's Coal Handling</li> </ul>
	and Processing Plant (CHPP). The feed cut-off grade depends on the ash source, being either
	>8% and <35% if ash is in situ, or >8% and <50% ash if contaminated with non-coal material
	(e.g. ash introduced due to previous underground extraction).
	• The minimum mineable seam thickness is 0.5m based on recovery by surface mining methods
	used at the site.
	Coal Reserves are only reported from the M2 seam horizon.

#### Commentary

# Mining factors or assumptions

- The mining method is conventional drill and blast, load and haul open pit mining operation. This utilises truck and excavator for waste movement, while coal is loaded using a combination of loaders and excavators with haulage to the run-of-mine (ROM) hopper CHPP, or stockpiles using dump trucks. The operations are supported by additional equipment including dozers, grader and watercarts. The selected mining method is based on long term experience of local conditions.
- Minimum recoverable in situ thickness is 0.5m.
- Coal Reserve tonnages have been estimated using a density value calculated using approximated in-ground moisture values (Preston and Sanders Method). As such, all tonnages quoted in this report are wet tonnes.
- All coal qualities quoted are on an Air-Dried Basis (ADB).
- Geotechnical parameters are based on geotechnical studies undertaken by the Stockton engineering geologists. Specific parameters are applied to each pit. Pit designs have been based on geotechnical constraints and parameters. The typical highwall configuration is a batter height of 15m with batter angles between 30°- 76° using 8.5m wide benches. A maximum 10% gradient and 23m wide running surface is being used for in pit ramps and roads.
- Pit limits have been updated based on pit optimisation studies with restrictions for current land and mineral access determined by mining permits and granted consent limits.
- Pit optimisations used current cost and revenue assumptions. The latest pit optimisation study was completed by Golder Associates (NZ) Limited in 2018.
- Grade control drill is undertaken as defined in Sections 1 to 3. Allowances for mining dilution and recovery has been applied to the block model. The mining loss, contamination and dilution is based on the lithology above the coal roof and below the coal floor as follows in metres for each mineable horizon:

	Thickness (m)	
	Roof	Floor
Mudstone Lost:	0.10	0.05
Mudstone Contaminated	0.05	0.10
Mudstone Dilution:	0.25	0.25
Other Lost:	0.05	0.05
Other Contaminated:	0.10	0.10
Other Dilution:	0.05	0.05

- Additional recovery factors for Millerton and Rockies mining block areas include losses for historical underground extraction, fire effected coal, and where the overburden material has collapsed into the coal seam.
- Approximately 58% of total Coal Reserve tonnes require washing to make a marketable product.
- Minimum mining widths are dependent on volumes to be excavated and the size of the fleet to be used. Typically for the bulk excavator and truck fleet this is approximately 30m. For the small excavators and trucks this is approximately 15m.
- Current mining methods require the following infrastructure; haul roads, drainage, pumps, sumps
  and dam structures, lime dosing plants, coal stockpile areas, CHPP, coal load out and bins, aerial
  ropeway, train load out and bins, workshop, offices, and contractor facilities. Much of this
  infrastructure is in place with the main new infrastructure required being related to water
  management and access such as sumps, dams and water control as the mining progresses into
  new areas.

# Metallurgical factors or assumptions

- **Bypass Coal** is defined as coal recovered that is not contaminated by rock or other materials and which when mined, is a saleable product (ash <8%).
- Wash Coal is defined as coal that requires processing/washing prior to becoming a marketable product. The feed cut-off grade depends on the ash source, being either >8% and <35% if in situ ash, or >8% and <50% for coal contaminated with non-coal material.
- Approximately 58% of total Reserve coal tonnes require washing to make a marketable product.
- Stockton has a CHPP in operation to produce a marketable product.
- The CHPP has an online analyser for identifying coal that is out of specification.
- Additional samples are sent for petrographic analysis (Romax).

#### Criteria Commentary The processes used are standard for the coal industry and so are well tested technologies. This has also been backed up by bulk samples being taken and tested for washability, yield and recovery factors. Historical plant performance was used to review these factors in late 2014 and are still considered applicable. A full reconciliation was not completed in 2020 and is recommended to be conducted at least annually. **Environmental** All mining approvals, consents, permits and licenses to operate have been granted for Stockton Mine. These are CML37150, MP41810 and MP52937. Environmental planning and management are fully integrated with coal mining at Stockton and the mine has annual rehabilitation targets. Due to high rainfall over the mine site the high content of suspended solid material is a concern to water quality. Stockton is developing an area for mining which includes systems to divert clean surface water around the disturbed area and for collection and channelling of mining contaminated water from the work site into the mine's water treatment infrastructure. The mine waste rock has the potential to generate acid; therefore, mine water is treated by lime dosing prior to discharge into receiving environment. The mine has a Closure Plan that has been approved by regulatory authorities. Disturbed areas are progressively rehabilitated on completion of mining activities. Soil and vegetation, where practically assessible, are carefully lifted and taken to a holding area or immediately placed in an area (VDT methods) of the mine undergoing rehabilitation. Environmental impacts that have been identified can be mitigated to meet permitting requirements. Stockton is an operating site with existing infrastructure in place to support the operation. This Infrastructure includes a CHPP, ROM pads, water treatment plant, lime dosing plant, workshop, offices, access road, aerial ropeway, train load out, water treatment structures, weighbridge area, contractor's laydown yard, power station and explosives storage. Labour is primarily sourced from the nearby town of Westport. Accommodation for the labour source is off-site in the small nearby towns but primarily in Westport. Costs Stockton is an operating mine and the majority of required capital expenditure has already been spent. Some additional capital expenditure is required to maintain existing structures, mobile fleet replacement and to develop additional water infrastructure as required for future mining areas (e.g. Resource definition). Operating costs are reviewed annually. These are based on historical actuals and forecasting for the following financial year. Operating cost is made up of equipment costs, fuel consumption, construction, fixed costs, administration costs, environmental costs and transport costs. These include mining, processing, civils, administration, haulage, coal transport via road, aerial ropeway, rail freight and port storage and handling costs. The CHPP is owned by BT Mining and costs are based on the demand for wash product in the annual budget. Historical data has been used to calculate CHPP costs.

## Revenue factors

 Coal prices – Hard Coking Coal (HCC) price estimate used was based on BT Mining Limited supplied pricing, PricewaterhouseCoopers (short-term forecast), and extrapolated for the longterm based on publicly available forecasts. These costs were documented by BT Mining and were reviewed and applied by Golder for economic pit shell evaluation.

Mine Rescue Levy, License and Inspection Levy, Energy Resources Levy, Crown Royalty, Coal Mining Licence fees, FME carbon and land rates are applied as per appropriate NZ legislation.

- Foreign exchange rates, sourced from BT Mining, are based on consensus published short term rates, PricewaterhouseCoopers and other publicly available forecasts. Current rates assumed are NZ\$1.00 = US\$0.70.
- All other prices derived from HCC based on agreed company ratios (generally SHCC 80%, SSCC 70% but can vary by mining area).
- High sulphur coal products > 4% adb are further discounted to 33% of the HCC benchmark estimate.
- Price sensitivity to coal with sulphur > 4% was included in the 2018 pit optimisation analysis. Assuming no value for these tonnes in the model resulted in no significant change in the

Criteria	Commentary
	economic pit shell extents.
	Thermal coal is uneconomic at the current sale price and excluded from the 2020 Coal Reserve
	tonnes. Thermal coal extracted as part of mining process is currently being stockpiled for
	<ul> <li>potential future sales.</li> <li>Discount rate is reviewed annually based on an internal BT Mining real rate.</li> </ul>
Market	The supply and demand situation for coal is affected by a wide range of factors, and coal
assessment	consumption changes with economic development and circumstances. BT Mining Limited has
	sales agreements in place with some existing customers. Established external forecast analysts
	have provided guidance to assess the long-term market and sales of coal.
	Stockton sells coal into several markets; the Coal Reserve quality in the Stockton pit has been
	decreasing over the life of mine as the Coal Reserve is depleted. Particularly lower in rank or
	higher in sulphur coal remaining have resulted in changes over time to coal market requirements.
	Currently 24% of the Coal reserves has a sulphur content > 4% and requires a blend partner to make a marketable product.
	<ul> <li>BT Mining Limited Marketing team is regularly in talks with new customers and investigate</li> </ul>
	potential new markets.
Economic	For the optimisation study carried out July 2018 the following inputs have been taken into
	consideration: mining, processing, civils, administration, haulage, aerial ropeway, rail, port costs
	and licenses and levies as per appropriate NZ legislation.
	• Pit optimisation study developed a revenue factor (RF) with a range of 0.4 to 2.0 in 0.1 intervals.
	• The incremental RFs allow for the generation of different pit shells, allowing different stages to be chosen rather than just mining the ultimate pit. RFs > 1 provide an indication of the possible
	size of a pit with potential price increases and designate likely infrastructure or waste rock storage
	areas.
	Sensitivity analysis has been completed on commodity price variations which is the primary
	driver for the Stockton pits.
	The updated pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carried out by Golder Associates (NZ) Limited in July 2018  for the Standard pit optimisation study carrie
	<ul> <li>for the Stockton pit area has been used to determine the current Coal Reserve block extents.</li> <li>The reported Coal Reserve is based on economic viability determined by BT Mining conducted</li> </ul>
	cashflow analysis using actual site performance, costs, mine plans and BT's marketing studies
	for sales and pricing, and Golder Associates (NZ) Limited informed of the results.
Social	BT Mining Limited currently holds the required permits for mining activities and landowner access
	to mine the current Coal Reserves reported.
	The Millerton and Plateau Protection Society (MAPPS) is an Agreement between BT Mining and
	the residences of Millerton Township. In this agreement BT Mining has stated that they will not mine within the MAPPS area but have also stated that it retains all the rights to undertake
	activities covered under the Coal Mining License (CML) including coal mining.
	As a part of the resource consenting process and general site operations, regular communication
	and consultation has taken place with the local communities including the local lwi.
Other	All material legal agreements, marketing arrangements and government approvals are in place
	and active for the existing operation.
	<ul> <li>There are no currently identified material naturally occurring risks that could impact the project or estimated Coal Reserves.</li> </ul>
Classification	<ul> <li>Coal Reserves are based upon Resources classified as either Measured or Indicated from the</li> </ul>
3.200040011	Resource estimation and classification process.
	The prospect is an operating site and assessed at or above a Pre-Feasibility Study (PFS) level.
	The Coal Reserve classification results appropriately reflect the Competent Persons view of the
	deposits.
	6% of Probable Coal Reserves are derived from Measured Coal Resources.
	Coal tonnes with >4% sulphur require blending with low sulphur coals assumed from the Bathurst  Resources Limited (BRL, parent company) owned projects or other unidentified external sources.
	Resources Limited (BRL, parent company) owned projects or other unidentified external sources to make a marketable product and have been classified as Probable.
Audits or	<ul> <li>In 2008 a study was undertaken to assess coal washability and based on the results the current</li> </ul>
reviews	CHPP constructed and remains in use at the site.
	In 2009 a Definitive Feasibility Study was undertaken for the Millerton Region.

#### Criteria Commentary Palaris undertook a review of the Stockton reserve model in 2013 and 2016 as part of a Vender Due Diligence process for the previous owner Solid Energy New Zealand Limited. Internal review Pit Optimisation Study has been undertaken in 2014. Golder Associates (NZ) Limited has reviewed the economic pit limits as part of Pit Optimisation studies completed in June 2015 and July 2018. Discussion of Coal Reserves have been reported in accordance with the guidelines of the 2012 edition of the relative Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, accuracy/ the basis of the categorisation reflects the accuracy of the coal reserve tonnes. confidence The accuracy of the Coal Reserve estimate is dependent on the ability to sell the coal at the estimated prices and the site operating costs. Site operating costs are based on historic actual costs, the discount rates and the forecast long-term coal sale price have been reviewed internally by BT Mining and as part of a pit optimisation study by Golder Associates (NZ) Limited in 2018. The Modifying factors applied to the reserve model are global estimates of tonnes and grade. Accuracy and confidence of modifying factors are generally consistent with the current operation. Modifying factors applied to the Stockton Coal Reserve are mining losses, dilution and contamination to both roof and floor of the coal seam. The amount of losses, dilution and contamination are dependent on the lithology of the rock in the roof and floor. Additional modifying factors are applied for previous underground (UG) mined area (e.g. Millerton area). For the UG areas the accuracy of factors for mining losses, dilution and contamination is reflected in the Coal Reserve classification of Probable. The other modifying factor that affects the Millerton block is presence of historic and active UG fires. A fire affected surface is estimated from drillhole data and applied in the block model. The accuracy of this surface is reflected in assigned Coal Resource classification of Inferred. BT Mining conducted additional infill and improved resolution of the surface area in 2018. Marketable coal tonnes are reported on the basis of in-ground moisture only, further data and assessment is recommended in order to report total product moisture. There are an estimated 1.1 million tonnes of coal product with a sulphur content >4% currently in the Stockton Coal Reserve (21% of Coal Reserve) that is recovered during the mining process and requires blending to make a marketable product. A high sulphur product (Granity) has been

tonnes (>4%) are classified as a Probable Coal Reserve.

developed that contains a high proportion of high sulphur coal. This product has been accepted following a customer trial during FY20. Other existing customers have contracted to purchase this coal product during the FY21, providing further confidence of market support. High sulphur

#### Appendix A:

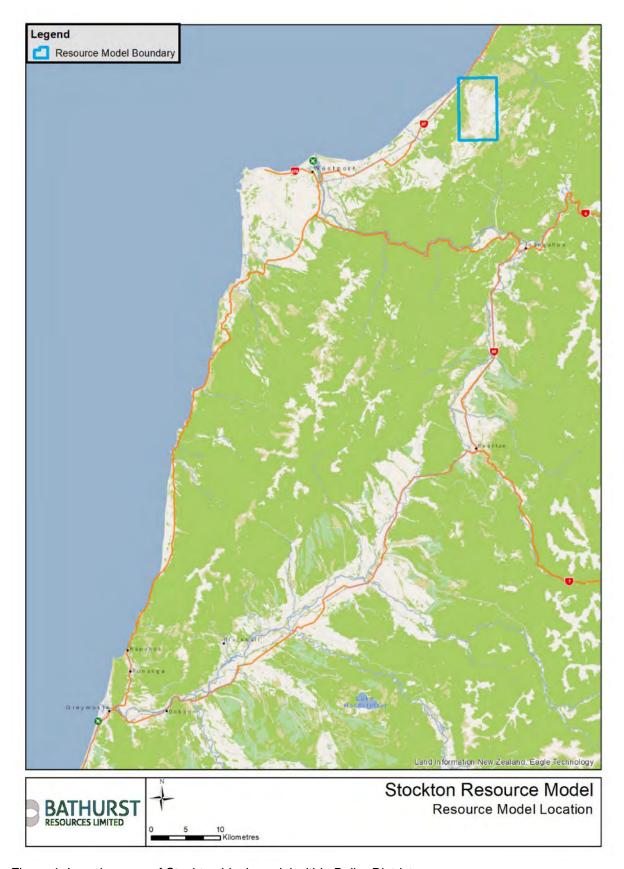


Figure 1: Location map of Stockton block model within Buller District

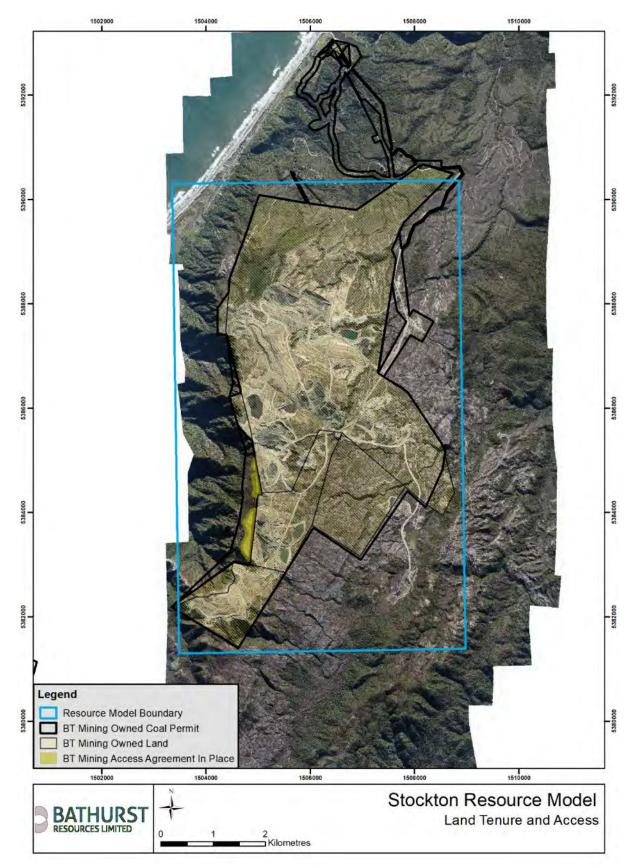


Figure 2: Map showing Land rights across the mine site

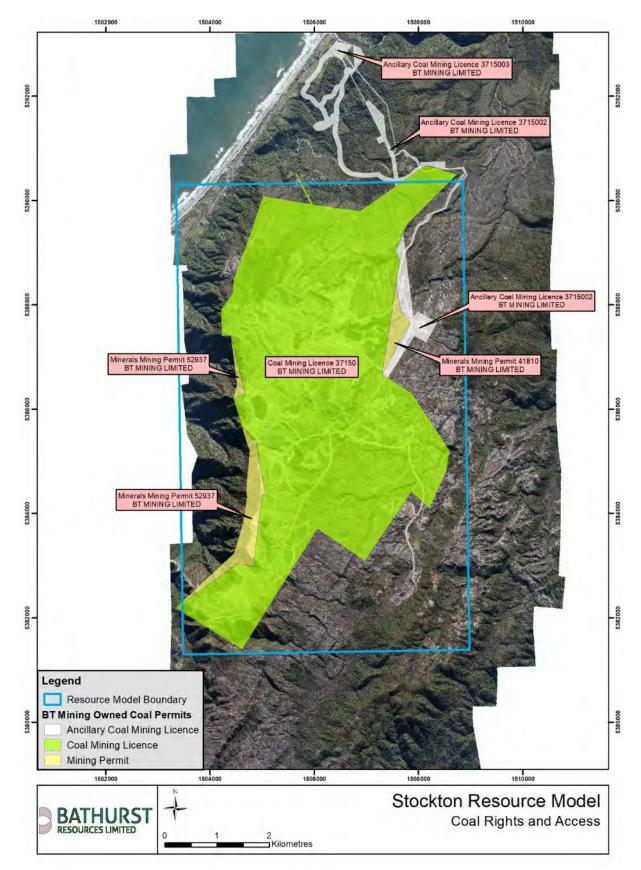


Figure 3: Map showing Mining Permit across mine site

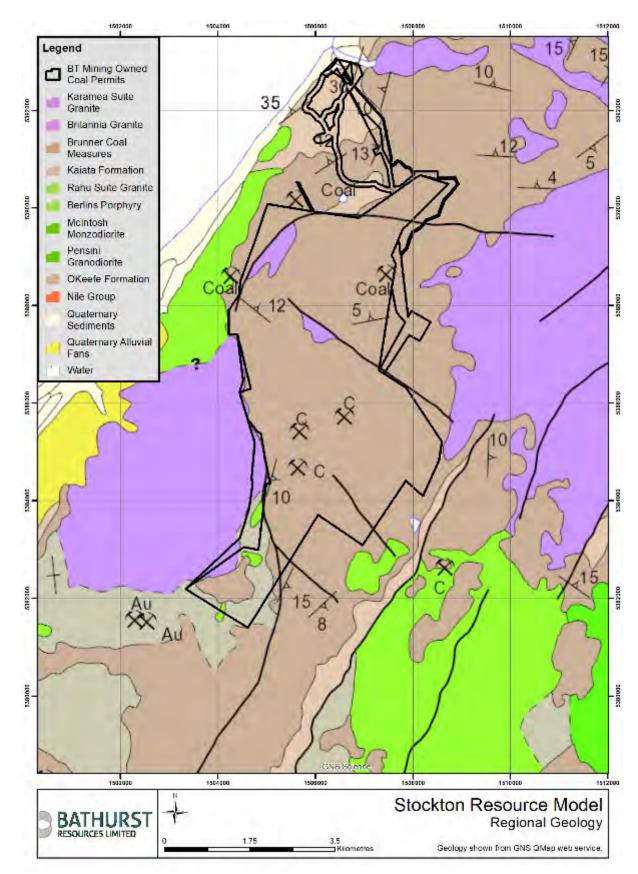


Figure 4: Geological QMap across the mine site

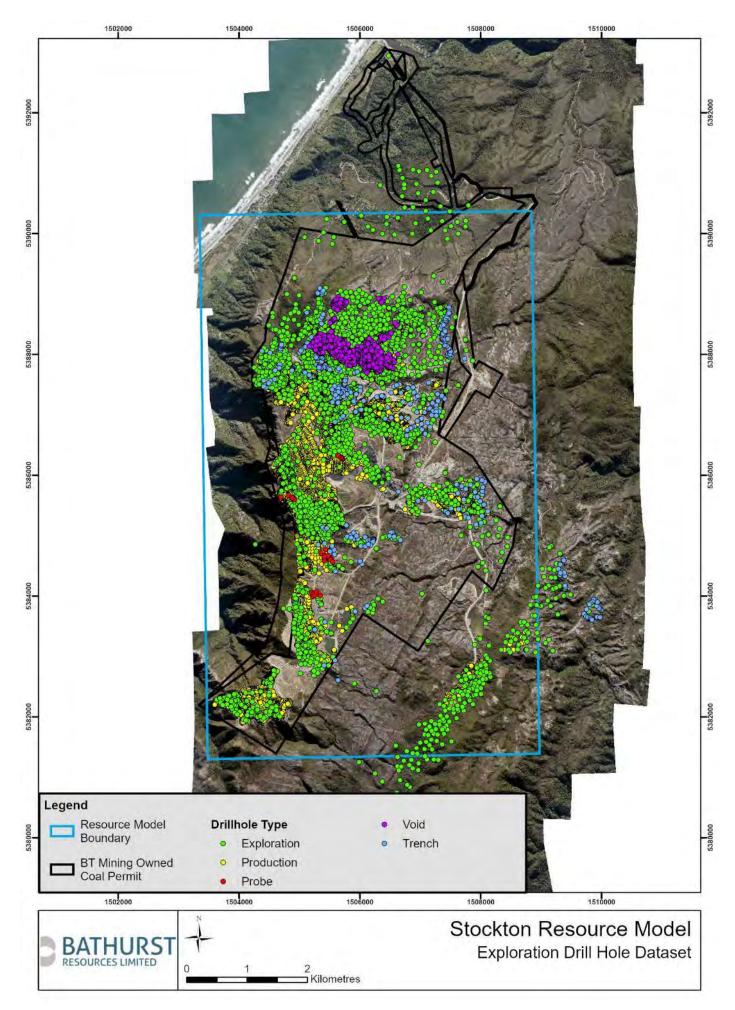


Figure 5: Map showing drillhole type/distribution

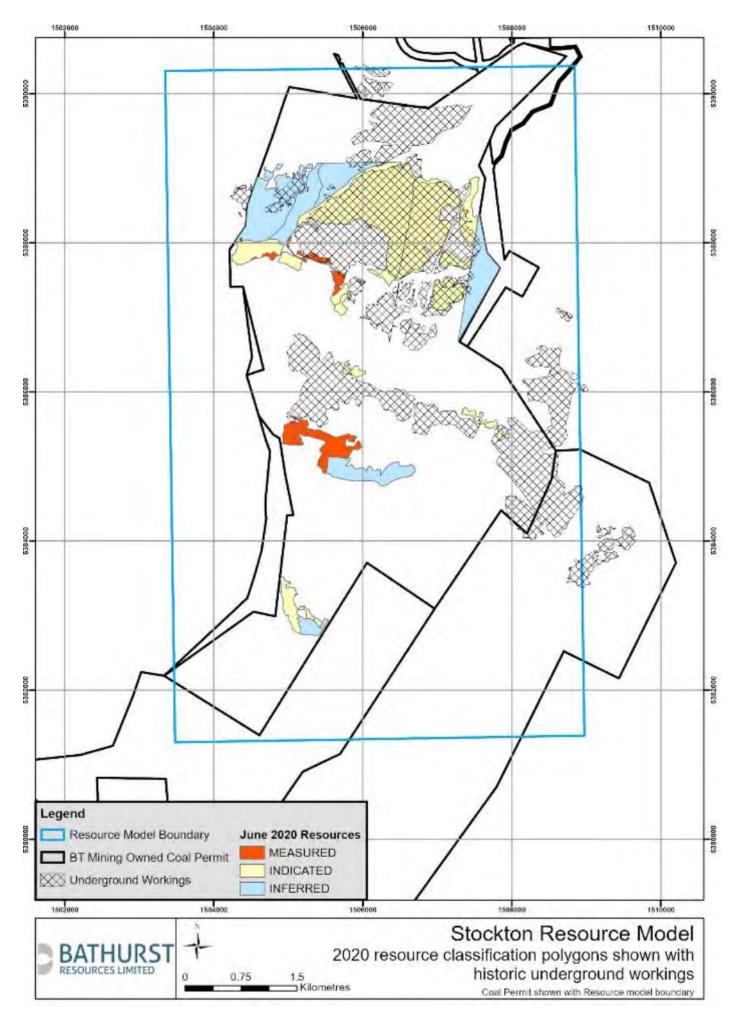


Figure 6: Map of underground workings across mine area

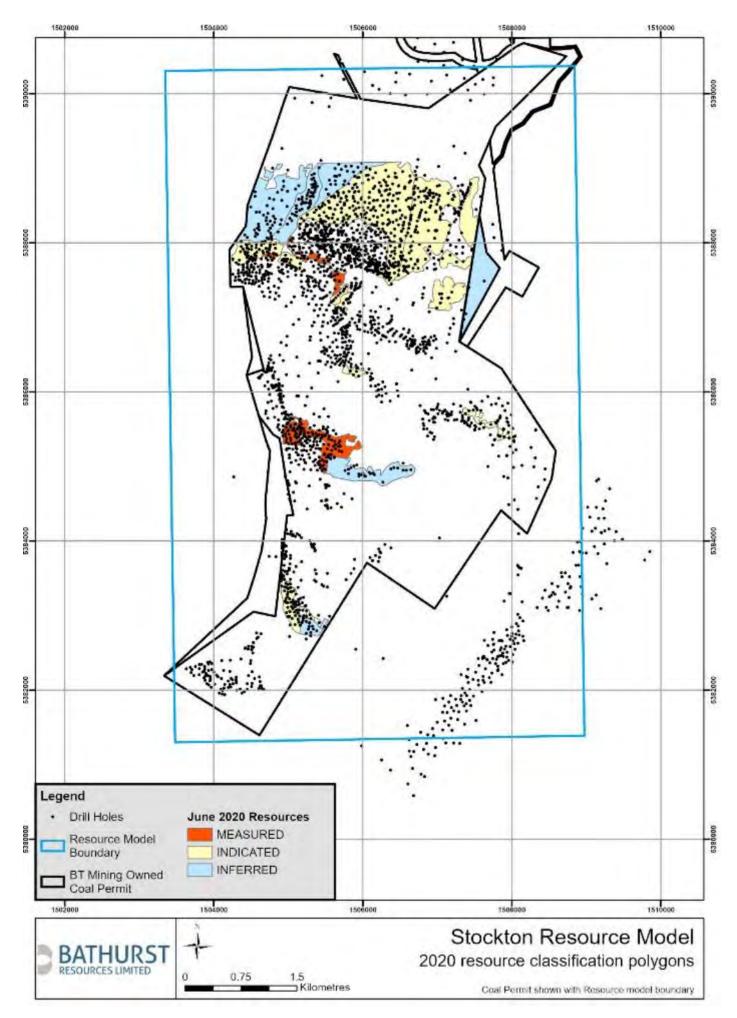


Figure 7: Map of Resource Classification

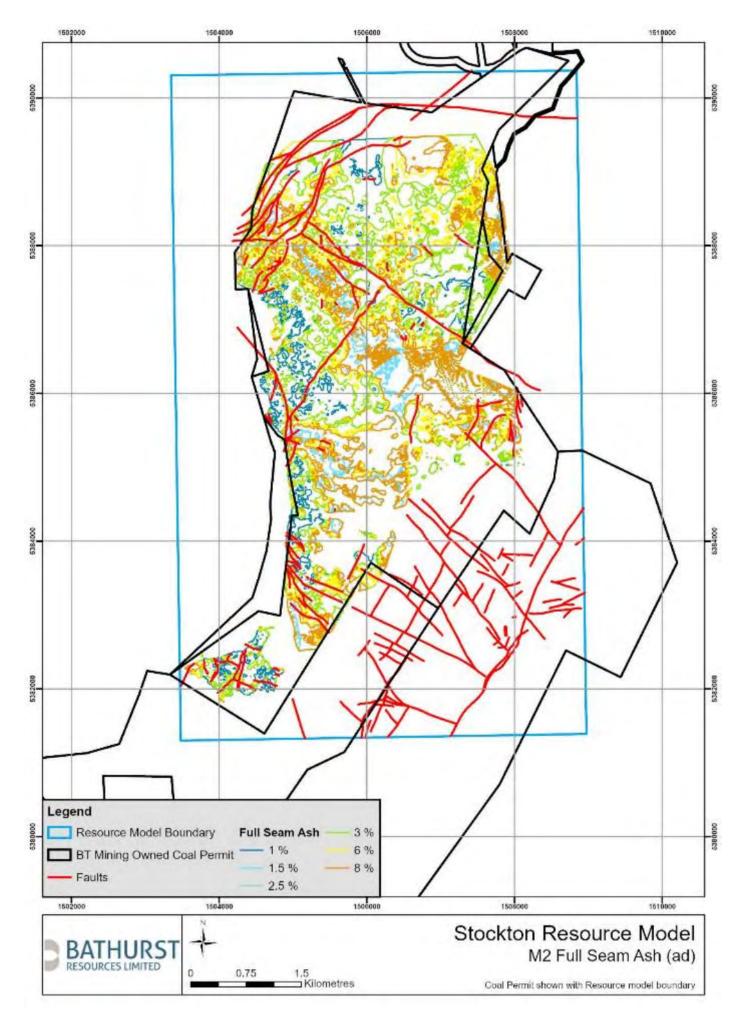


Figure 8: Map showing M2 Ash distribution

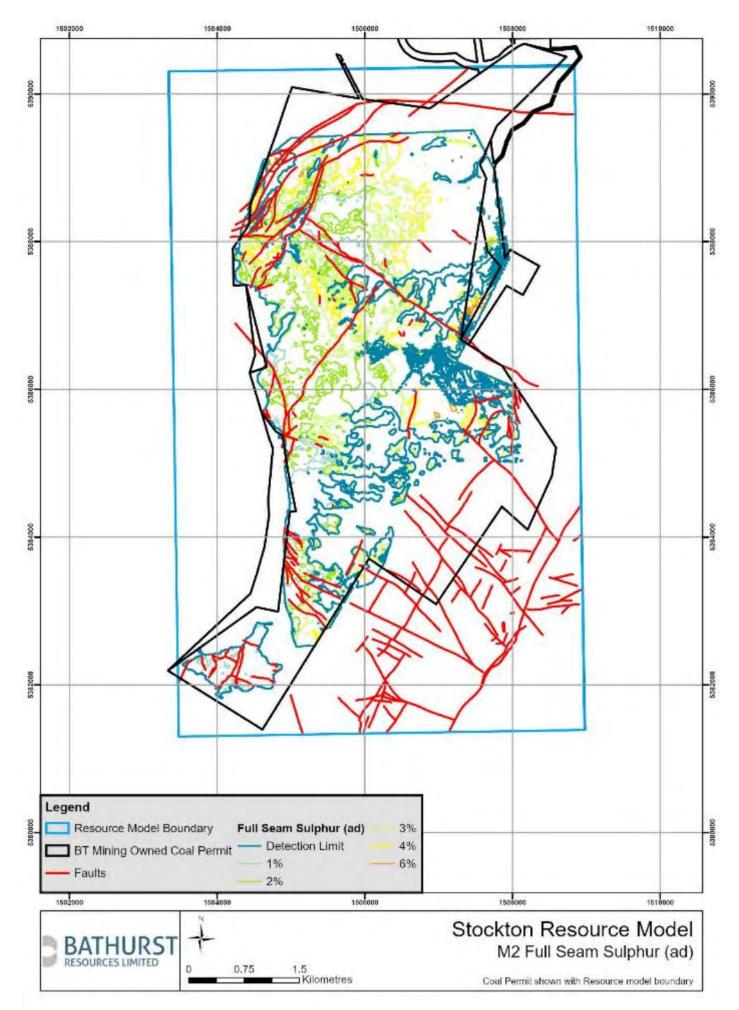


Figure 9: Map showing M2 sulphur distribution

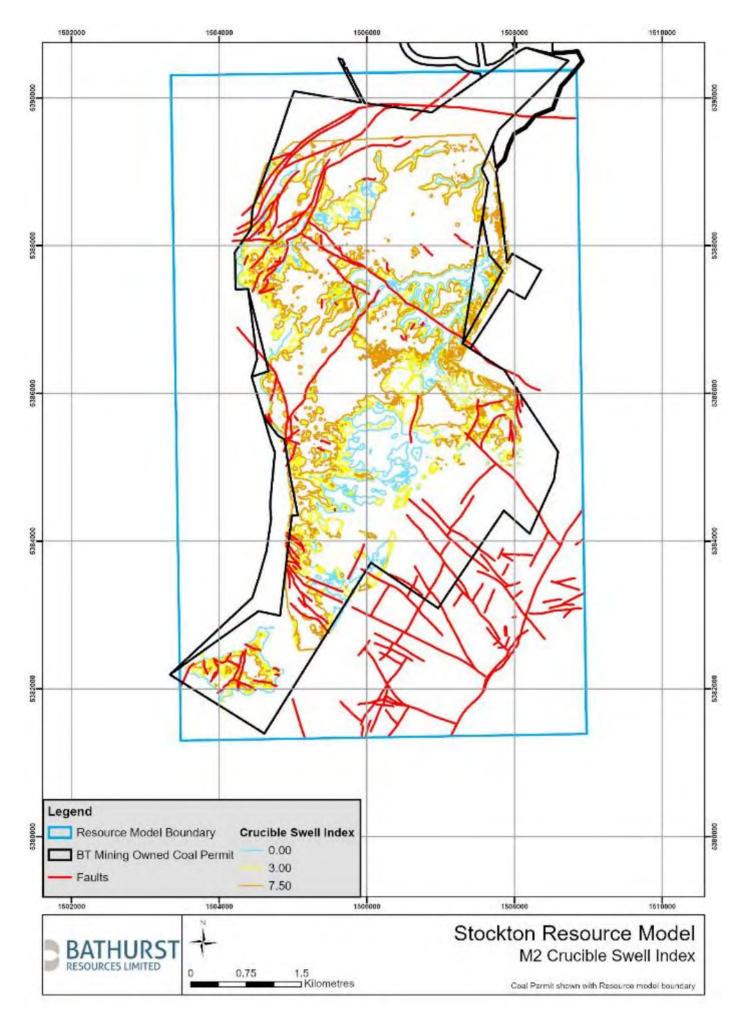


Figure 10: Map showing M2 Crucible Swell Number (CSN) distribution

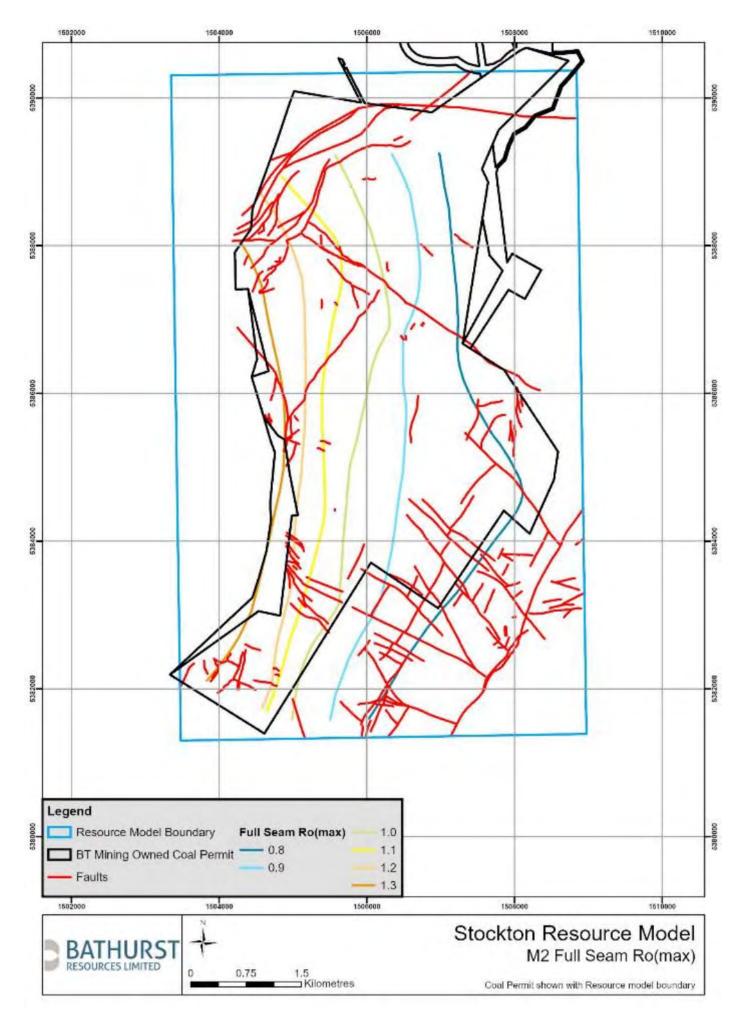


Figure 11: Map showing M2 RO(MAX) distribution

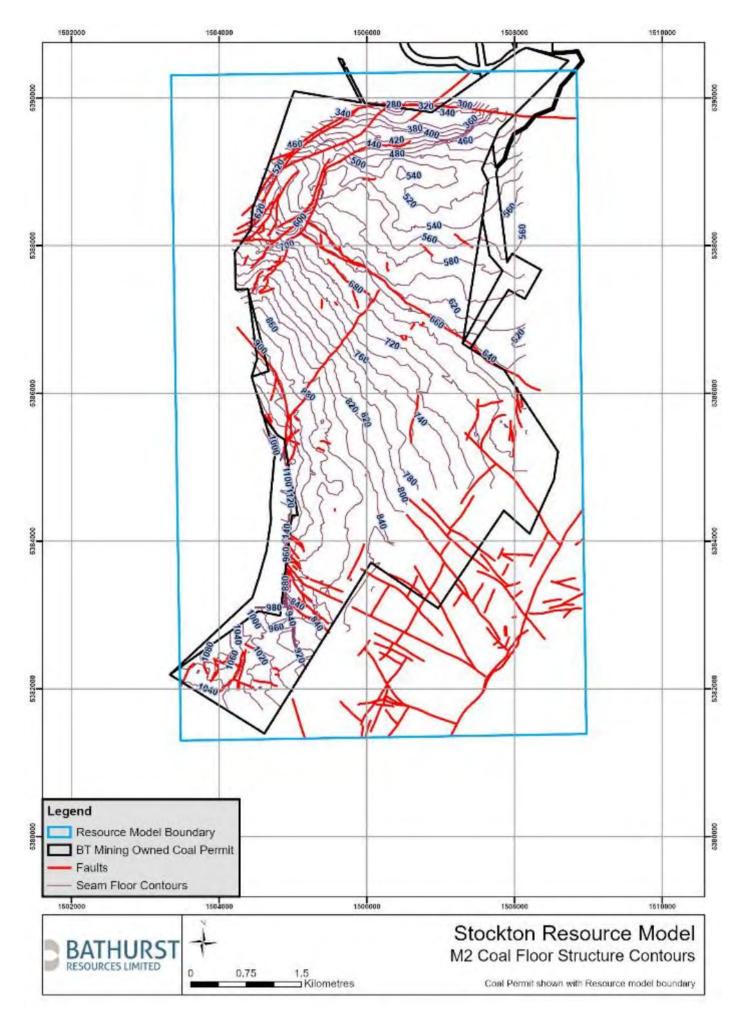


Figure 12: Map showing M2 floor contours distribution

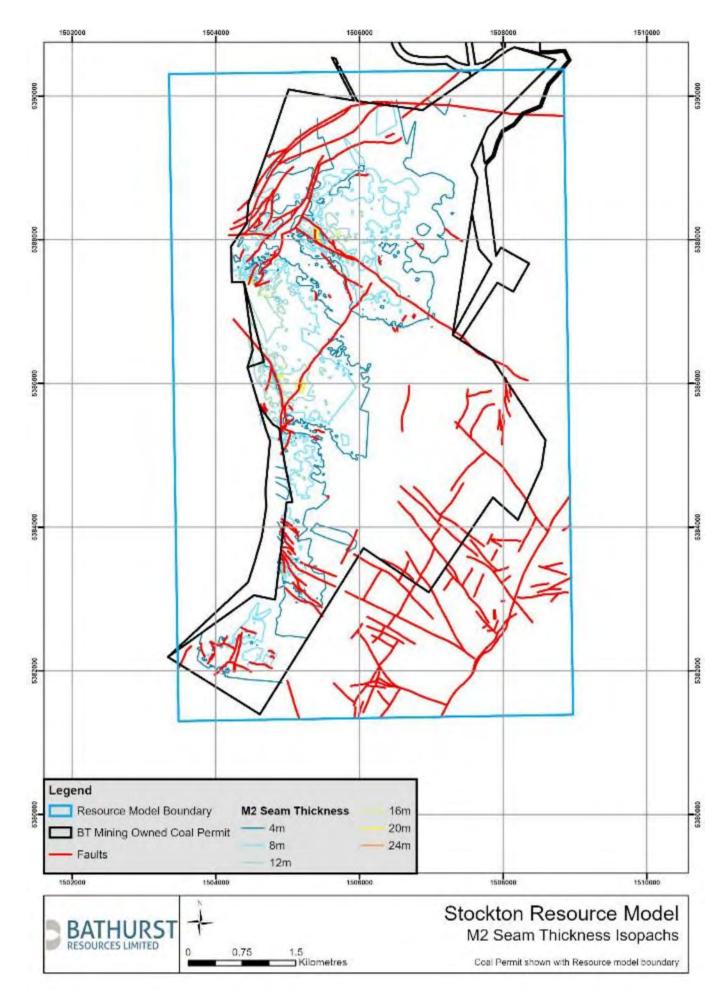


Figure 13: Map showing M2 apparent seam thickness

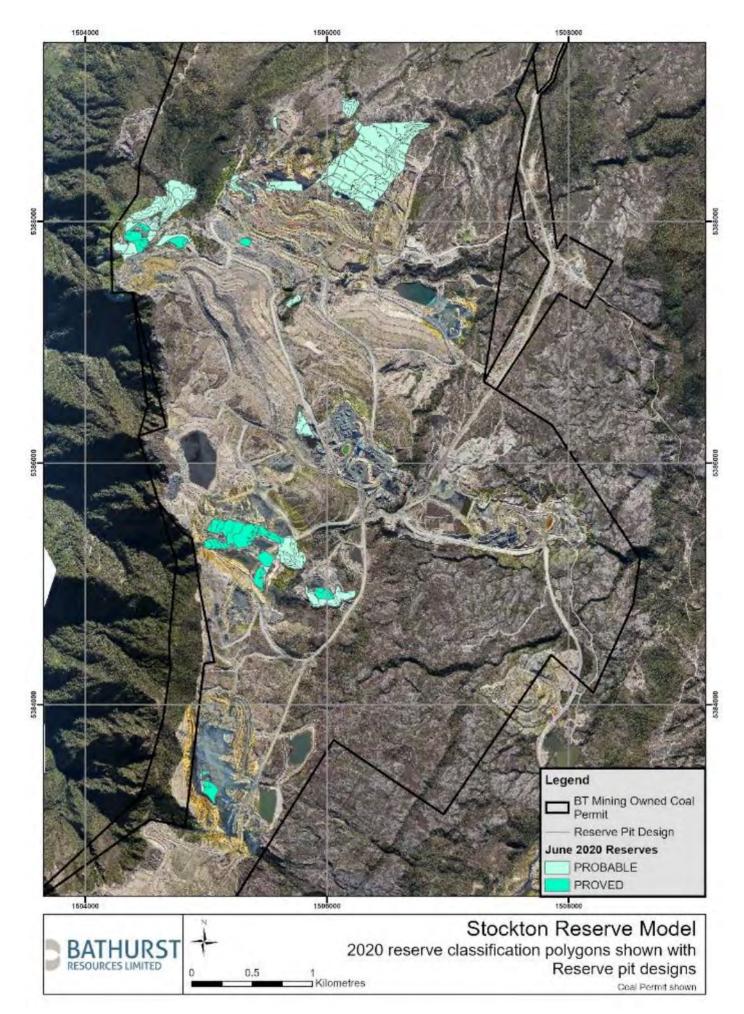


Figure 14: Stockton reserve pit shells

# JORC Code, 2012 Edition - Table 1 Report for Upper Waimangaroa 2020

Section 1 Sampling Techniques and Data

drillers are correct.

Criteria	Commentary
Sampling techniques	<ul> <li>Diamond Core (DC) drilling sampling for coal quality analysis took place using PQ (85mm) or HQ (64mm) coring methods for coal seams. The entire core is retained for analysis. Resource modelling has been undertaken over four individual areas of interest (Figure 2): <ul> <li>Mt. William North.</li> <li>Cypress.</li> <li>Mt. William South.</li> <li>Upper Waimangaroa South.</li> <li>Individual resource model reports have been compiled for the individual areas of interest.</li> </ul> </li> <li>DC sampling is carried out under Stockton specific protocols and QAQC procedures.</li> <li>Composited samples are created at the laboratory from individual plies that are thickness weighted. These composited samples are compiled for additional coal property testwork.</li> <li>Trench lithology and sampling data collection has been collected in a similar manner to drill core (i.e. 0.5m plies) and have had the same analysis completed.</li> <li>Reverse Circulation (RC) chip samples are collected via a cyclone attached to a reverse circulation percussion drill rig. Sampling is primarily undertaken on 0.5m intervals through the coal seam (~6kg), and indicative 1m rock samples (~70g). The entire coal sample is retained for analysis.</li> <li>The quality of drill core, RC chip samples and trench samples are continuously monitored and collected by geologists during drilling.</li> </ul>
Drilling	Drilling has been undertaken using the following techniques:
techniques	<ul> <li>Drilling has been undertaken using the following techniques.</li> <li>Diamond Core (triple tube, PQ core).</li> <li>Open hole (Tungsten drag bit, PQ size).</li> <li>Reverse Circulation (PQ sized face sampling bit).</li> <li>Blade bit.</li> <li>Some drill collars have had open hole pre-collars.</li> <li>The bulk of the drillholes have been drilled vertically due to the shallow dipping morphology of the deposit and due to its close proximity to the surface.</li> <li>No core has been orientated.</li> </ul>
Drill sample	Diamond Core
recovery	<ul> <li>Standard industry techniques are employed for recovering drilled core samples from drillholes. Core is obtained by HQ (63mm) diameter coring techniques, using triple tube operations, providing good core recovery, averaging &gt;80% over the entire drillhole (inclusive of non-coal lithologies). On average recovery of coal is 90%.</li> <li>HQ core diameter is considered to provide a sample of sufficient volume to be representative of the in situ material and provides adequate sample mass to undertake the variety of raw coal tests together with composited sample analysis when required.</li> <li>In poor ground conditions HQ sized rods, and therefore core were used to ensure that the drillhole was completed without affecting the integrity of the drill core and or loss of drilling equipment.</li> <li>Downhole geophysics has been undertaken on most of the diamond core holes. A combination of geophysical tools, including Density, Natural Gamma, Caliper, Sonic, Dipmeter, Acoustic Scanner, and Verticality have been run down holes. All tools are calibrated on a regular and systematic basis. All geophysical logging work has been conducted by a contractor (currently Weatherford). Sample interval and recovery recorded in the field by drillers is validated and adjusted if required using geophysics during core logging and sampling.</li> <li>When drillholes are geophysically logged, the geophysical logs are correlated/validated against</li> </ul>

the core to determine core/chip recovery, while ensuring drill depths recorded in the field by the

### Criteria Commentary Core photography is undertaken on all diamond core. **Reverse Circulation Drilling Chips** RC chip samples from the reverse circulation percussion drillholes is recovered directly from the rods using a cyclone system. The entire sample interval is retained for coal quality analysis. Sample interval of 0.5m produces a sample between 5 - 7kg. For non-coal lithologies an indicative sample (~70g) from each meter is retained for geological RC generated samples with poor recovery (<3kg) are not submitted to the laboratory for analysis. Should there be poor recovery for the entire coal seam the hole is re-drilled if there is no specific reason for the poor recovery (e.g. presence of underground workings within the coal seam). The Competent Person is satisfied that the RC holes have taken a sufficiently representative sample of the mineralisation and minimal loss of fines has occurred. Logging All diamond core samples are checked, measured, marked up and finally photographed before logged in a high level of detail. All diamond core samples are geologically logged in a high level of detail down to centimetre scale. Intervals are logged for lithology, colour, weathering type, stratigraphy, texture, hardness, RQD and defects. Logging is conducted using a defined set of codes. Every discrepancy between the measured length of the core and the driller's length marked on the core blocks is investigated. Discrepancies are resolved by geologists prior to sampling with the use of geophysical logs.

# All percussion drillholes chip samples are geologically logged, with 1m samples used to define the non-coal lithologies (overburden), and 0.5m samples for coal and other non-coal lithologies surrounding or contained within coal seam partings. The geological logs are validated against

- laboratory results.
  The entire lengths of RC drillholes are logged. Where no sample was returned due to voids/cavities it is recorded as such.
- Drillholes that have been geophysically logged with a suite of tools (as described above) are
  analysed extensively to validate, confirm and correct coal seam depths. Validation and, if
  required, correction of the geological logs against geophysics is undertaken to ensure accuracy
  and consistency. Verticality, caliper, density and natural gamma tools are checked regularly with
  standard calibration assemblies. The density calibrations are performed routinely with blocks
  of known densities (aluminum and/or water).

#### Sub-sampling techniques and sample preparation

- No splitting of core is undertaken in the field or during sampling.
- Sample selection is determined in-house and is documented in a core sampling procedure.
   Clean coal core has been sampled to a maximum of 0.5m plies, and adjusted for core loss and lithological variations.
- Associated high ash coal intervals and partings were sampled separately to assess potential dilution effects where they are <0.5m thick. Intervals with non-coal material (>50% ash) are excluded from sampling.
- Trench samples follow the same procedure as described for core samples.
- Samples are placed into pre-labeled plastic bags to ensure proper Chain of Custody, and then
  transported by BT Mining Limited personnel to the laboratory for testing. The laboratory
  continues with the Chain of Custody requirements. Sample preparation is undertaken according
  to Industry Standards.
- A laboratory generated repeat sample is submitted with every 20th sample submitted to the laboratory. This sample is provided a new sample ID with no reference to the original sample ID.
   The results of these repeat samples are reviewed monthly and any discrepancies investigated.
   RC Chips
- No splitting of coal interval chips is undertaken.
- Non-coal intervals are sub sampled directly from the cyclone.
- Sample selection is determined in-house and is documented in a core sampling procedure.
  Associated high ash coal intervals and partings are sampled separately to assess potential
  dilution effects where they are adjacent to coal seams. Intervals with non-coal material (>50%
  ash) are excluded from sampling.

#### Commentary

- Samples are placed into pre-labelled plastic bags to ensure proper Chain of Custody, and then
  transported by Stockton personnel to the laboratory for analysis. The laboratory continues with
  the Chain of Custody requirements. Sample preparation is undertaken according to Industry
  Standards.
- A laboratory generated repeat sample is submitted with every 20<sup>th</sup> sample submitted to the laboratory. Before submission this repeat sample is provided a new unique sample ID with no reference to the original sample ID. The results of these repeat samples are reviewed monthly and any discrepancies investigation.

#### Quality of assay data and laboratory tests

SGS in Ngakawau and CRL (ACIRL Australia and Newman Energy subcontracted for specific tests) laboratories are used to undertake physical and chemical testing and use Industry Standards for all coal tests and systematic QA/QC procedures for all work. Both laboratories hold accreditation by International Accreditation New Zealand (IANZ). The processes employed are considered to be appropriate for coal sample analysis. Results are reviewed in-house to ensure the accuracy of the data by a geologist and or a senior geologist. The laboratory has been inspected by the Company's personnel. Tests include but are not limited to:

#### **Chemical Analysis**

- Proximate analysis (ASTM D5142-2004 (modified))
- Sulphur (ASTM D4239-04A)
- o Total Moisture (ISO 589)

#### **Ultimate Analysis**

- Carbon (AL038-in house)
- o Hydrogen (ASTM D3176-09)
- o Nitrogen (ASTM D3176-09)
- Oxygen (ASTM D3176-09 (by difference))
- o Sulphur (ASTM D3176-09)
- o Forms of Sulphur (AS 1038 Part 11)
- o Chlorine (ISO 587)
- Ash composition (X-Ray spectrometry (Spectrachem))
- Ash fusion temperature (ISO 540:1995(E))
- o Trace Elements
- o Calorific Value (ISO 1928-1995)

#### Rheological and Physical Analysis

- o Gieseler Fluidity (ASTM D2639-90)
- Dilatational (Audibert-Arnu) (ISO 349:1975)
- Free Swelling Index (ISO 501:2003(E) D720-91(1999))
- Hardgrove Grindability Index (ISO 5074, ASTM D409-02)
- o Relative Density (AS 10382111-1994)

#### **Petrographic**

Maceral Analysis (c/- Newman Technologies), Vitrinite Reflectance (ASTM D2798-99)

#### **Other Tests**

- Washability testing as requested (AS 41561 using float-sink methods) (also used Boner gig shaker table process).
- 5% of all SGS analysed samples from 2010 have been sent to CRL for re-analysis, and then subsequently re-tested at SGS. The result of these repeats are analysed by the database geologist and the resource geologist, on a monthly basis. Additionally 5% of all SGS analysed samples are retested by SGS, as part of their in-house QAQC process. These repeat test results are generally within a 5% of their original results. Results outside of set tolerances are investigated.
- Results are reviewed on a regular basis by the project geologist.

#### Verification of sampling and assaying

Most holes are geophysically logged, and verification of seam contacts are made through analysis of the geophysics. Assessment of coal intersections are undertaken by a geologist. Geophysics allows confirmation of the presence (or absence) of coal seams, accurate determination of contacts to coal seams, density measurements are used to guide sampling and identify high ash bands and or seam partings.

#### Criteria Commentary Geophysical logs (dual density and gamma) are analysed extensively and used to validate and, if required, correct geological and sample interval logs to ensure accuracy and consistency. Coal ply results are provided by the laboratory and reviewed internally. No adjustments or calibrations are made to any coal quality data. In instances where results are significantly different from what was observed in geophysical logs or outside of local or regional ranges defined by previous testing, sample results are retested. Since 2006 all coal quality data has been directly submitted and stored in electronic format using Acquire SQL database software. Historical data has been validated and entered into the Acquire SQL database, from the original paper logs. These geological and geophysical paper logs are housed in the fire proof library in Westport. Historical data was transferred and validated against the current logging codes to ensure the data was valid. A limited number of twin holes have been drilled, and returned acceptable duplicates of the original holes. The Competent Person has inspected the sampling processes and inspected the laboratory. Location of Upper Waimangaroa data is surveyed in Buller 1949 grid coordinate system in New Zealand with data points mean sea level datum (MSL). However the Geode correction for elevation is not undertaken due to the elevation of the mine-site. All on-site survey data used in the resource estimation does not have the Geode correction as well. All drillholes post 1998 are surveyed using real time kinematic GPS technology and are located within +/- 20mm vertically and +/- 10mm horizontal. Older drillhole collars were surveyed using conventional methods. Historical underground workings plans are based off old hand drawn plans that have been georectified (in 2D only) by converting from cadastral links to the Buller 1949 geodetic grid. Topographic surfaces consists of triangulations constructed from a combination of airborne LiDAR (accurate to within +/- 0.2m) collected for the whole of the Upper Waimangaroa area in June 2013. Drillholes with down-hole geophysics are surveyed for deviation with Weatherford verticality tool (+/- 15° azimuth and +/- 0.5° inclination). Data spacing Exploration drillholes are variably spaced (<100m to 1,500m) depending on target seam depth, and geological structure, topographic constraints, down-hole conditions due to underground distribution workings, and the location of other drillholes. RC drillholes were spaced 40-80m apart to define a weathering profile. No sample compositing is undertaken prior to initial laboratory ply analysis. Should detailed coal analysis be required, compositing is undertaken at the laboratory on a length weighted basis. This drill spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate to support the resource classification and is suitable for this style of deposit. Further drilling will be required to upgrade resource classification as part of long term development plans for the greater Stockton Plateau. Orientation of Majority of holes are drilled vertically, due to near horizontal coal seams. data in A small number of exploration holes have been inclined. The purpose of these holes were to relation to define significant geological structures and/or for geotechnical purposes and not for coal seam geological geometry and quality. structure No drilling orientation and sampling bias has been recognised at this time and is not considered to have introduced a sampling bias. Sample RC chip samples are collected in uniquely numbered pre-labelled plastic bags. Three to five security samples are then placed in a large plastic bag for delivery to the laboratory. Core and trench samples are placed in uniquely numbered pre-labelled plastic bags. Three to five samples are then placed in a large plastic bag for delivery to the laboratory. Prior to submission to the laboratory, a standarised dispatch form is generated for each drillhole, within the Acquire SQL database software, which delineates the set of analysis to be undertaken and the logged sample numbers.

Once samples and dispatch form are completed, the sample bags are validated and

Criteria	Commentary
	<ul> <li>subsequently delivered to the secure laboratory sample receiving area by a staff member. Once received at the laboratory, the consignment of samples is receipted against the sample dispatch documents.</li> <li>Any additional analysis is requested as required by the geological services superintendent or resource geologist.</li> <li>Sample residues are stored at the laboratory pending results and any possible repeat requests.</li> <li>Sample security is not considered a significant risk to the project.</li> </ul>
Audits or reviews	<ul> <li>Integrity of all data (drillhole, geological, survey, geophysical and CQ) is reviewed by the resource geologist before being used to model either structure or qualities.</li> <li>Periodic internal reviews are conducted, to verify that both core and chips are logged in a consistent manner. These reviews are done either by a senior geologist or by the resource geologist.</li> <li>The Acquire database was last externally audited in 2008 by Advanced DataCare. Suggested actions were reviewed and actioned where necessary.</li> <li>The Acquire database is considered to be of sufficient quality to carry out resource estimation</li> <li>Resource models have been externally reviewed by Palaris as part of Solid Energy's Vendor Due Diligence in April 2016.</li> </ul>

## Section 2 Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	<ul> <li>Upper Waimangaroa MP41515 is a Coal Mining Permit which is due to expire on 11 November 2038.</li> <li>BT Mining Ltd has sole ownership of the Cypress operation and Upper Waimangaroa area.</li> <li>BT Mining is a joint-venture between Bathurst Resources Limited (65%) and Talley's Energy Limited (35%).</li> <li>On 1 September 2017 BT Mining took control of Solid Energy assets including two operating mines Rotowaro and Maramarua in the Waikato region of the North Island, and the Stockton mine on the West Coast of the South Island.</li> <li>All operations at Cypress mine are currently undertaken within the Mining Permit boundaries.</li> <li>BT Mining Ltd does not own any land within the Upper Waimangaroa South resource. The land is owned by the Crown and administered by LINZ. BT mining Limited has a land access agreements with the Crown to access land. The agreements expire at a date after the life of CMP 41515, to be determined by the Crown, to provide sufficient time for rehabilitation. The permit expires in 2038.</li> <li>Royalties and Levies are applied to per ton of coal produced.</li> </ul>
Exploration done by other parties	<ul> <li>Within the MP41515, the previous owner (Solid Energy) has undertaken all exploration on the tenement since 1987. However, there have been earlier periods of work that have contributed to the understanding of this Resource. These programmes include early drillholes back to the late 1800s through into the 1900s, with New Zealand Coal Resources Survey preforming additional drilling in the 1980s.</li> <li>Between 1927-47 28 drillholes were drilled by Westport Coal Company.</li> <li>In 1952-53 a further nine drillholes were drilled in the northwest area by the Mines Department.</li> <li>In 1976-77, 14 drillholes were drilled by the Ministry of Works.</li> <li>Three phases of drilling were completed by New Zealand Coal Resources Survey between 1982 – 1985.</li> <li>State Coal Mines drilled 48 holes between 1985 - 1987.</li> <li>Solid Energy commenced further drilling from 1997 – 2012.</li> </ul>
Geology	<ul> <li>Coal resources on the Stockton Plateau are restricted to the Middle to Late Eocene aged Brunner Coal Measures (BCM). This unconformibly overlies the Ordovician aged Greenland Group greywacke's and argillites, which has been extensively intruded by Cretaceous granites and porphyry (Berlins Quartz Porphyry). Due to the stratigraphic nature of coal measures, the coal</li> </ul>

Criteria	Commentary							
Deille	<ul> <li>seams generally lie in a horizontal or sub-horizontal plane. The resource has a dip to the NE the northern end of the deposit and to the east along the western margin. Folding and fault through the coal seams can create localised changes in dips up to 80°.</li> <li>The Mangatini coal seams are the main coal seams of the Upper Waimangaroa Deposit. It seams have been given the abbreviation M. There are the three seams M1, M2, and the IT The M1 and M2 seams are the predominant seams over the deposit. Seam splitting is commacross the deposit and can lead to correlation complications. No distinct marker horizons present between the seam. Correlations are based on detailed cross sections completed acre the deposit. The M1 and M2 seams are the dominant seams targeted for mining and can vary thickness. The M2 seam overlies the M1 seam. The M3 is a rider seam to the M2. The M3 sea is considered for resource classification in the Cypress consented area where it exceeds minimal mining cut-off of 0.5m. The M3 seam is characterised by having high sulphur (&gt;4%) a is generally poorly developed.</li> </ul>							
Drillhole Information	<ul> <li>No exploration results are reported. Comments relating to drillhole information can be found in Section 1.</li> <li>The exclusion of this information from this report is considered not to be material to the understanding of the report.</li> </ul>							
Data aggregation methods	<ul> <li>understanding of the report.</li> <li>The maximum ash cut-off for building the Upper Wiamangaroa structure models was set at 25%.</li> <li>Resources have been reported with an ash cut-off of 25%.</li> <li>Seams have been sampled on a ply-by-ply basis with ply boundaries determined by reconciliation against down hole geophysics.</li> </ul>							
Relationship between mineralisation widths and intercept lengths	All exploration drillholes have been drilled vertically and the coal seams are generally gentl dipping. Therefore the reported seam intercept thickness is representative of the true sear.							
Diagrams	Diagrams can be found in the Appendix A for each of the following:  Location map Resource modelling area Geological QMap Schematic diagram illustrating coal seam naming convention Map showing drillhole type/distribution Map of underground workings Map of Resource Classification Map showing floor contours distribution Maps showing M1/M2 Coal thickness isopachs Maps showing M1/M2 Ash distribution Maps showing M1/ M2 Sulphur distribution Map showing M1/ M2 Volatile Matter distribution Map showing M2 ROMAX distribution Upper Waimangaroa Reserve Pit Shells							
Balanced reporting	<ul> <li>No exploration results are reported. This avoids any issues with unbalanced or biased reporting.</li> <li>The Competent Person does not believe that the exclusion of this comprehensive exploration data within this report detracts from the understanding of this report or the level of information provided.</li> </ul>							
Other substantive exploration data	<ul> <li>Historically a number utilisation and specialist marketing testing has been undertaken.</li> <li>The different stratigraphic units and rock defects have been assigned various strength parameters based on historic laboratory test data (UCS, shear box and ring shears), empirical classifications (RMR, GSI and Hoek Brown). Downhole in situ geophysical measurements have been undertaken to compare the strength variability with actual laboratory test data.</li> </ul>							
Further work	<ul> <li>Additional exploration and resource development drilling has been proposed to better define geological structures, seam structure, thickness and coal quality of the deposit.</li> </ul>							

### Section 3 Estimation and Reporting of Coal Resources

Criteria	Commentary
Database integrity	<ul> <li>All GPS sourced and validated survey data recorded in the field is electronically transferred into the master BT Mining (BTM) Acquire SQL database.</li> <li>All drill core logging data is digitally entered directly into the Acquire SQL database, with in-built enforced data validation rules. Drill chip geological logging data is manually entered into the Acquire SQL database, with in-built enforced data validation rules.</li> <li>The Acquire SQL database has been designed to ensure data is entered and stored in a consistent and accurate manner by using dropdown menus of standard logging codes to prompt and constrain inputs. The database highlights out of range coal quality values, duplicate records/intervals, prevents overlapping intervals or depths that extend beyond total drillhole depth. All changes to the database are tracked and archived. Data correction and validation checks are undertaken internally as defined by the Data Validation Standard before the data is used for modeling purposes.</li> <li>Once all validation is completed all drillhole data is signed off by both the responsible geologist, and the resource geologist. On completion of the data sign-off process the data is locked in Acquire and cannot be adjusted unless requested by the site geologist.</li> <li>Data validation checks are run routinely by the site geologist using Acquire software validation routines. All validation concerns are rectified by the site geologist.</li> <li>The Acquire database was last externally audited in 2008 by Advanced DataCare. Suggested actions were reviewed and actioned where necessary.</li> </ul>
Site visits	<ul> <li>Competent Person, Mark Lionnet, has a full time role with Bathurst Resource Limited as the Export Project Manager with a high level of interaction with the Stockton geologist.</li> <li>The Competent Person has worked for five years at Stockton and has extensive knowledge of the project area.</li> <li>Regular visits have been undertaken by the Competent Person.</li> </ul>
Geological interpretation	<ul> <li>There is sufficient confidence in interpretation of geological stratigraphy, structure and seam correlation/continuity though it is variable across the Upper Waimangaroa area.</li> <li>The data used in the geological interpretation included field mapping, drillhole data, core logging data, geophysical logs, sampling, coal quality laboratory testing and structural interpretations. Residual variability exists concerning geological structure along/within the major fault zones, resulting in a lower level of resource confidence. This variability will influence the local estimates rather than the global structural and coal quality estimates for these zones.</li> </ul>
Dimensions	<ul> <li>The Upper Waimagaroa resource area covers approximately 4km², a roughly rectangular shape up to 2km wide (ESE-WNW), and 10km long (NNE-SSW).</li> <li>Within this area all seams are exposed at outcrop along the western margin of the MP. With the bulk of the in situ coal between 0 and 150m below the original ground surface.</li> <li>Coal thickness varies considerably over the deposit, from over 20m (areas with structural thickening) down to &lt;3m (areas with coal seam poorly developed). On average the cumulative (M1 and M2) coal resource has an average thickness of 8m.</li> <li>The M3 seam is on average 0.5m thick.</li> </ul>
Estimation and modelling techniques	<ul> <li>Modelling has been undertaken using Maptek's Vulcan Version 9.1 software by resource geologists experienced in its use, using a standarised set of validated scripts and the structural modeling module integrated into the software package.</li> <li>Resource models have been produced across four prospective areas:         <ul> <li>Mt. William North.</li> <li>Cypress.</li> <li>Mt. William South.</li> <li>Upper Wiamangaroa South.</li> </ul> </li> <li>Mt William North is based on a resource model utilising a combination of 111 drillholes, reverse circulation and trench intersections.</li> <li>422 drillholes and trenches are utilised in modelling and resource estimation for the Cypress</li> </ul>

### Criteria Commentary model. The Upper Waimangaroa model has utilised 192 exploration drillholes and 24 trench intersections. Mt. William South has been interpreted using 23 exploration drillholes. All valid drilling data, mapping data, together with a number of structural interpretations are used as the source data for creating the coal seam surfaces (grids). Grids for the coal roof and floor (including seam splits) are developed over the entire MP. These coal surfaces are modeled using a stacking algorithm with the coal roof of the predominant coal seam (M1 and or M2) used as the reference surface. This process is repeated for six geological domains of the deposit to ensure that the coal seams are modelled accurately. The major fault blocks each have separate interpretation data points, to guide interpretation process, with a hard data boundary with the surrounding fault blocks. The structural grids are created by using a triangulation algorithm. Grid sizes vary across the four models but are dependent on data support. The methodology of creating structural grids is common practice for the estimation of coal deposits. Fault blocks have been modelled separately, and then appended together along three-dimensional fault surfaces. Block model extends vary depending on modelling extents and can overlap. A standarised block model schema has been used, with a standised set of variables, with associated default values. The latest validated survey "original" topo surfaces and structural grids are used to create an empty block model, with 20m by 20m blocks with a minimum thickness of 0.5m (for coal seams). The parent block size is approximately one fifth the average drill spacing to ensure the mineralisation is well represented by the blocks. For Mt. William North a standarised block model was created, with a standised set of variables, with associated default values that has been used for the nearby Stockton and Cypress deposits. The topography surface and grids surfaceswere used to flag blocks within the model. The seam blocks are 10m (x) by 10m (y) by 0.5m (z) blocks with a minimum thickness of 0.5m (for coal seams). The drilling database is used to create a set of 0.5m thick composites from the assay results, which is then used to estimate the coal qualities for the blocks within the coal seams. Multiple estimation runs are completed to ensure all blocks are populated. All coal blocks have been estimated using the inverse distance methodology, with a power of 2, for the standard set of coal qualities (ash, sulphur, swell, inherent moisture, volatile matter). Coal Quality Estimation parameters used during coal quality estimation have been standardised between models: Search ranges used are 250 x 250 x 0.5m, 500 x 500 x 0.5m, 1000 x 1000 x 0.5m. 2000 x 2000 x 0.5m, 4000 x 4000 x 0.5m. 0 Samples used are a minimum of 2 and a maximum of 5. A maximum of 2 samples from any one drillhole is allowed. Block discretisation of 4,4,1 was applied. 0 Using the Vulcan "tetra unfolding" methodology, along the modelled coal seam surfaces.

- At each stage of the process (initial data points, new surfaces, and final block model) the new data is validated back to the previous model, to ensure consistency.
- Standard Block model validation was completed using visual and numerical methods.
- No selective mining units were assumed in the estimate.

#### Moisture All moisture values are reported on an air-dried basis, using air-dried ply results to estimated moisture. Inherent moisture is measured for all drillholes samples.

#### Tonnages are estimated on an air-dried dry basis.

#### Cut-off parameters

- A minimum seam thickness cut-off for all modelled seams is 0.50m. As this is what is currently considered as recoverable using open cast methods.
- A maximum ash cut-off of 25% has been applied to all coal seams except where seam continuity is required, which may include intervals with greater than 25% ash.
- Coal with ash <8% is considered "bypass" coal and does not require any further processing. Coal with ash >8% needs to be processed through the company's Coal Handling and Processing Plant (CHPP).

Criteria	Commentary					
	• Coal tonnes are only reported from the M1 and M2 seams and their respective splits (no M3					
	tonnes are reported).					
	<ul> <li>All resources blocks are reported within the 2019 Whittle pit optimisation 1.2 revenue factor (RF) pit shell.</li> </ul>					
Mining factors	Selected mining method chosen from long term experience of local conditions at nearby Cypress					
or	and Stockton mines.					
assumptions	Geotechnical parameters for cut slope design were developed based on historical cut slope					
	performance, slope back analysis and laboratory testing of material strength parameters. Slopes					
	are designed to comply with a Factor of Safety that exceeds 1.2 with its related probability of failure and potential failure dimensions.					
	<ul> <li>Minimum recoverable coal thickness is 0.5m, with the expectation to extract 100% of the in situ</li> </ul>					
	coal.					
Metallurgical factors or	Contaminated coal from mining will be processed via the company's Coal Handling and      Description Plant (CLIPP). The CLIPP reserves the dilutent material and a great partial of seal.					
assumptions	Processing Plant (CHPP). The CHPP removes the dilutant material and a small portion of coal to provide a more saleable product. The plants performance has been routinely monitored since					
	its inception.					
	<ul> <li>Although not included in the resource estimate, studies have been conducted on the properties</li> </ul>					
	of the coal pertaining to combustion potential, ash fusion temperatures and Hardgrove					
	Grindability Index.					
	Small parcels of coal have been sent to customers for evaluation and testwork.					
Environmen- tal factors or	Cypress and Mt. William North are fully consented.					
assumptions	Currently no Resource Consents exist for the southern portion of the Upper Waimangaroa deposit					
,	<ul> <li>deposit.</li> <li>A number of lithological units will be exposed during the mining process which will likely generate</li> </ul>					
	acid metal drainage. This will require engineering of water containment and treatment.					
Bulk density	The relative density value is calculated using the available ash-density data (248 samples) to					
	define an ash-density curve.					
	Non-coal units are assigned default density value based upon the lithology type.					
Classification	The resource has been classified into the Inferred/Indicated/Measured status by analysing three					
	factors upon which the geological confidence is based:					
	Number of informing drillholes used.  Provingity to major faults.					
	<ul><li>Proximity to major faults.</li><li>Proximity to sub crop position.</li></ul>					
	<ul> <li>The Competent Person has reviewed the results of the resource classification process and made</li> </ul>					
	adjustments where necessary and or required.					
	The input data is comprehensive in its coverage of the coal seams and does not miss-represent					
	the in situ coal seams.					
	The results of the validation of the block model exhibit a good correlation of the input data to the					
	estimated grades					
	<ul> <li>All resources are within the 2019 Whittle pit optimisation 1.2 revenue factor (RF) pit shell.</li> <li>The Competent Person has taken into account all relevant factors in undertaking this estimation</li> </ul>					
	and considers the estimate to be a true reflection of the current understanding of the deposit.					
Audits or	Regular internal reviews of the resource modelling process have been undertaken internally by					
reviews	the Competent Person; all issues raised have been addressed.					
	• Palaris completed an external review of this estimation in May 2016 as part of Solid Energy's					
	Vendor Due Diligence process. No substantial issues were raised. No further estimation has					
Diam'r.	taken place within this part of the Mining Permit since this review.					
Discussion of relative	Based on the data available, the degree of accuracy of this statement is considered high for the  Lipper Weimangarea deposit. The process for calculation has used: Standards. Cuidelines and					
accuracy/	Upper Waimangaroa deposit. The process for calculation has used: Standards, Guidelines and the JORC Code along with industry best practice where available to define the Resource					
confidence	estimates provided to confirm search estimation ranges and drillhole spacing for each resource					
	classification.					

#### Section 4 Estimation and Reporting of Coal Reserves

#### Criteria Commentary Mineral The Mineral Resource estimates are those undertaken by Stockton Geology Team employed by Resource BT Mining Limited at the Cypress Mine located within the Upper Waimangaroa Mining Permit estimate for area (MP41515) as outlined in Section 1-3. conversion to Coal Resources are inclusive of Coal Reserves. Ore Reserves The Coal Reserve estimates are for a long-term operating site. Drillholes are validated then coded to create a structural grid model using Vulcan software by BT Mining Limited. This structural model forms the framework that a 3D block model is created from by the site geologists. The resource block model includes topography, seam structure and coal qualities used for in situ Coal Resource delineation. BT Mining Limited has a robust and stable modelling process in place. Tonnages reported, model mining modifying factors including surface mining extraction, loss and dilution, plant yields and economics have been reviewed and reconciled against actual performance. An overall decrease in the previously reported run of mine Coal Reserves is attributed to an update to the Pit Designs taking to account new geotechnical constraints. Also model depletion due to mining. Site visits The Competent Person for this Coal Reserve Statement is Ian Harvey, a full-time employee of BT Mining Limited based at Stockton. The Competent Person has almost 20 years' experience working at Stockton in various roles, including resource modelling and mine planning, as well as coal quality management and mine/market planning. Study status Cypress mine is an operating mine. Material Modifying Factors have been considered. The reportable Coal Reserve is based on actual site performance and costs that have been determined to be economically viable in a cashflow analysis conducted by BT Mining. There are other Coal Resources under evaluation in the MP41515 area; however these studies are at a scoping or preliminary assessment level and therefore been excluded from the Coal Reserves. **Cut-off** A maximum ash cut-off of 25% has been applied to all coal seams except where seam continuity parameters is required, which may include intervals with greater than 25% ash. Coal with ash <8% is considered "bypass" coal and does not require any further processing. Coal with ash >8% "wash" coal needs to be processed through the company's Coal Handling and Processing Plant (CHPP). The CHPP feed cut-off grade is <35% ash. The minimum mineable seam thickness is 0.5 m based on recovery by surface mining methods used at the site. Coal Reserves are only reported from the M2 and M3 coal seam horizons. Mining factors The mining method is conventional drill and blast, load and haul open pit mining operation. This utilises truck and excavator for waste movement, while coal is loaded using a combination of assumptions loaders and excavators with haulage to the Run of Mine (ROM) stockpiles, directly to the CHPP, or to other intermediate stockpiles using dump trucks. The operations are supported by additional equipment including dozers, graders and watercarts. Geotechnical parameters are based on geotechnical studies undertaken by the Stockton engineering geologists. Different parameters are applied to each pit. Pit designs have been based on geotechnical constraints and parameters. The typical highwall configuration is a batter height of 15 m with batter angles between 30°- 63° using minimum 8.5 m wide benches. Maximum of 10% gradient and a 23 m wide running surface is being used for in pit ramps and roads. Minimum recoverable in situ thickness is 0.5 m. Reserve tonnages have been estimated using a density value calculated using approximated inground moisture values (Preston and Sanders method). As such, all tonnages quoted in this report are wet tonnes. All coal qualities quoted are on an Air-Dried Basis (adb).

- Pit design extents were established using standard Lerchs-Grossman (LG) pit design techniques and based on preliminary economic and geotechnical inputs.
- Pit limits are based on pit optimisation studies with restrictions for current land and mineral access determined by mining permits and granted consent limits.
- BT Mining completed an updated LG optimisation assessment in May 2019, the updated pit designs have been published for this years report. BT Mining informed Golder Associates (NZ) Limited of the results.
- Mine design strips by bench were applied to develop a mine schedules and used as a basis for reporting reserves.
- Reserve estimates include consideration of material modifying factors including: the status of
  environmental approvals; other governmental factors and infrastructure requirements for
  selected open pit mining methods and coal transportation to market (per JORC Code 2012).
- Grade control drill is undertaken as defined in Section 1 to 3.
- Allowances for mining dilution and recovery has been applied to the block model. The mining loss, contamination and dilution is based on the rock mass lithology above the coal roof and below the coal floor as follows in metres for each mineable horizon:

	Thickness (m)		
	Roof	Floor	
Mudstone Lost:	0.10	0.05	
Mudstone Contaminated	0.05	0.10	
Mudstone Dilution:	0.25	0.25	
Other Lost:	0.05	0.05	
Other Contaminated:	0.10	0.10	
Other Dilution:	0.05	0.05	

- An additional modifying factor was added in 2017 to the Cypress North pit area to account for mining dilution introduced from a combination of sheeting and soft seam floor contacts. The dilution is estimated at the bench level on 3 m mining horizons, this factor was extended into the Cypress South Pit area in 2018.
- Minimum mining widths are dependent on volumes to be excavated and the size of the fleet to be used. Typically for the bulk excavator and truck fleet this is approximately 30m. For the small excavators and trucks this is approximately 15m.
- Current mining methods require the following infrastructure: Haul Roads, Drainage, dewatering
  and transfer pumps, sumps and dam structures, Lime Dosing Plants, coal stockpile areas,
  CHPP, coal load out and bins, aerial ropeway, train load out and bins, workshop, offices, store,
  maintenance and contractor facilities. Most of this infrastructure is in place with the main new
  infrastructure required being sumps, dams and water control as the mine expands into
  undisturbed areas.

## Metallurgical factors or assumptions

- Coal with ash <8% is considered "bypass" coal and does not require any further processing.</li>
- Coal with ash >8% "Wash" coal needs to be processed through the company's Coal Handling and Processing Plant (CHPP). The feed cut-off grade depends on the ash source, being either >8% and <35% if ash is in situ, or >8% and <50% ash, if contaminated with non-coal material (e.g. ash introduced due to previous underground extraction).
- An estimated 25% of total ROM Coal Reserve tonnes require washing to make a marketable product.
- Wash coal won is processed at the adjacent Stockton mine that has a CHPP in operation to produce a marketable product.
- Online analysers are utilised for identifying coal that is out of specification.
- Additional samples are sent for petrographic analysis (Romax).
- The processes used are standard for the coal industry and so are well tested technologies.
- This has also been backed up by bulk samples being taken and tested for washability, yield and recovery factors.
- Historical plant performance was used to review these factors applied in the model, and these
  modifying factors updated in the block model 2017.

#### Criteria Commentary Environmental All mining approvals, consents, permits and license to operate have been granted for Cypress Mine area in MP41515. The Cypress mine operates in a sensitive environment and has a complex set of consent conditions that require diligent management. Environmental planning and management is fully integrated with coal mining at Cypress and the mine has annual rehabilitation targets. Developing an area for mining includes systems to divert clean surface water around the area and ensure any water from the work site which is carrying sediment is collected and channelled into the mine's water treatment infrastructures. Soil and vegetation are carefully lifted and taken to a holding area or immediately placed in an area of the mine undergoing rehabilitation. Red tussock and Herb fields are carefully lifted and transported to specially design storage areas to allow them to be transplanted back in Cypress pit once the pit has been mined then backfilled to the original ground level. Environmental impacts that have been identified can be mitigated to meet permitting requirements. Infrastructure Cypress is an operating satellite mine area of the greater Stockton mine with existing infrastructure in place to support the operation. Most of this is based at the nearby Stockton mine (CML37150). This includes a network of haul roads, CHPP, ROM stockpile area, water treatment plant, lime dosing plant, workshop, offices, aerial ropeway, train load out facility, water treatment structures and intermediate coal stockpiles, waste rock dumps, weighbridge area, contractors laydown yard, power station and explosives storage. Labour is primarily sourced from the nearby town of Westport. Accommodation for the labour source is off-site in the small nearby towns but primarily in Westport. Costs Cypress is an operating mine and majority of the capital has already been spent. Some additional capital expenditure is required to maintain existing structures, mobile fleet replacement and also to develop additional water infrastructure as required for future mining areas (e.g. Resource definition). Operating costs are reviewed annually. These are based on historical actual's and forecasting for the following financial year. This is made up of equipment costs, fuel consumption, construction, fixed costs, administration costs, environmental costs and transport costs. Annual Budget prices for major consumables and infrastructure is used. The CHPP is owned by BT Mining Limited and costs are based on the demand for wash product in the annual budget. Mine Rescue levy, License and Inspection levy, Energy Resources levy, Crown royalty, Coal Mining Licence fees, FME carbon and land rates are applied as per appropriate NZ legislation. Revenue Coal price assumptions applied in the 2015 optimisation study were assumed: factors Hard Coking Coal (HCC) prices were based on Wood Mackenzie April 2015 (long term forecast). All other prices derived from HCC based on agreed company ratios (semi-hard (SHCC) 87%, semi-soft (SSCC) 70%). Exchange rates Bloomberg (April 2015 forward curve 10 years). BT Mining conducted an updated optimisation in May 2019 based on prices derived from consensus on published benchmark HCC sale price and agreed updated company ratios (SHCC 78%, SSCC 62%, coal with sulphur >2% discounted to 38%) and using consensus published short term exchange rates, PricewaterhouseCoopers and other publicly available forecasts. Thermal coal is uneconomic at the current sale price and excluded from the 2019 Coal Reserve tonnes. Minor amounts of thermal coal extracted as part of mining process is currently being stockpiled for potential future sales. Discount rate is reviewed annually based on BT Mining company real rate. Market The supply and demand situation for coal is affected by a wide range of factors, and coal

consumption changes with economic development and circumstances. BT Mining has sales agreements in place with some existing customers. Established external forecast analysts have

provided guidance to assess the long term market and sales of coal.

assessment

Criteria	Commentary						
	Coal product types are classified into Semi-hard and Semi-soft based on product specifications and further separated into low sulphur < 4% adb and high sulphur > 4% adb. Approximately 4% of the Coal Reserve has a sulphur content > 4% and requires a blend partner to make a marketable product.  BT Mining Limited Marketing team is regularly in talks with new customers and investigate potential new markets.						
Economic	<ul> <li>For the optimisation carried out June 2015 and May 2019 the following inputs have been taken into consideration: mining, processing, civils, administration, haulage, aerial ropeway, rail, port costs and licenses and levy's as per appropriate NZ legislation.</li> <li>Pit optimisation was carried out using a revenue factor (RF) range of 0.4 to 2.0 in 0.1 intervals. The incremental RFs allow for the generation of different pit shells, allowing different stages to be chosen rather than just mining the ultimate pit. RFs &gt; 1 provide an indication of the possible size of a pit with potential price increases and designate likely infrastructure or waste rock storage areas.</li> <li>Sensitivity analysis has been completed by Golder Associates (NZ) Limited in 2015 and by BT Mining in May 2019 on commodity price variations which is the primary driver for the Cypress pits.</li> <li>The reported Coal Reserve is based on economic viability determined by a BT Mining conducted cashflow analysis using actual site performance, costs, mine plans and BT's marketing studies</li> </ul>						
Social	for sales and pricing, and Golder Associates (NZ) Limited informed of the results.  • BT Mining Limited currently holds the required DOC Permits for Mining and access to mine the						
	<ul> <li>Cypress Region.</li> <li>The Cypress region requires additional permits to operate covering vegetation disturbance, wild life (kiwis, etc.), water discharge</li> <li>As a part of resource consenting process and general site operations, regular communication and consultation has taken place with the local communities including the local lwi.</li> </ul>						
Other	<ul> <li>BT Mining Limited acquired the Cypress deposit and adjacent Stockton Mine assets from Solid Energy New Zealand Ltd on 1 September 2017.</li> <li>All material legal agreements, marketing arrangements and government approvals are in place and active for the existing operation.</li> <li>Geotechnical stability can impact Coal Reserves if not continually managed, instability in the north highwall occurred in 2020 that removed 70 thousand tonne from the Coal Reserve and required redesign of the pit. In Cypress South Pit the redesign took out 634 thousand tonnes. The mine employs specific geotechnical staff and has well defined geotechnical standards to mitigate the risk. The highwall requires ongoing monitoring.</li> <li>There are no other currently identified material naturally occurring risks that could impact the project or estimated Coal Reserves.</li> </ul>						
Classification	<ul> <li>Coal Reserves are based upon resources classified as either Measured or Indicated from the Coal Resource estimation and classification process.</li> <li>The Coal Reserve classification results appropriately reflect the Competent Persons view of the deposits.</li> <li>2% of Probable Coal Reserves are derived from Measured Coal Resources.</li> <li>Coal tonnes with &gt;4% sulphur require blending with low sulphur coal from the Bathurst Resources Limited (BRL, parent company) owned projects or other unidentified external sources</li> </ul>						
Audits or reviews	<ul> <li>to make a marketable product and have been classified as Probable.</li> <li>In 2008 a study was undertaken to assess coal washability and based on the results the current CHPP constructed and remains in use at the site.</li> <li>Palaris undertook a review of the Cypress reserve model in 2013.</li> <li>Internal review of the Pit Optimisation Study was undertaken in 2014.</li> <li>A Pit Optimisation study was completed in June 2015 by Golder Associates.</li> <li>Palaris Pty undertook a review of the Cypress reserve model in 2016 as part of a vendor due diligence for Solid Energy New Zealand Ltd.</li> <li>The mining and CHPP performance were reconciled in 2017 with actuals. Golder recommends</li> </ul>						

Criteria	Commentary
	<ul> <li>that at a minimum there is annual reconciliation performed.</li> <li>A 2019 reconciliation on a mined block in Cypress North pit area by the BT Mining site coal quality geologist, showed the overall marketable coal recovery was consistent with that modelled even though the actual proportion of Bypass to Wash coal won was lower than modelled by approximately 10%.</li> </ul>
Discussion of relative accuracy/ confidence	<ul> <li>Mineral Resources have been reported in accordance with the guidelines of the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves and reflects the relative accuracy of the Mineral Resource estimates.</li> <li>The statements relate to global estimates of tonnes and grade.</li> <li>Accuracy and confidence of modifying factors are generally consistent with the current operation. Modifying factors applied to the Cypress Reserves are Mining Losses, Dilution and Contamination to Roof, Floor and at 3 m bench intervals of the coal seam. The amount of losses, dilution and contamination are dependent on the lithology of the rock in the roof and floor, weather and mining method. Dilution requires careful management and can result in higher percentages of coal that requires beneficiation to make a saleable product. There is a coal wash plant available. Plant performance data sets are still limited and require reconciliation on at least an annual basis.</li> <li>Marketable coal tonnes are reported on the basis of in-ground moisture only, further data and assessment is required to report product on a total moisture basis.</li> <li>The accuracy of the Coal Reserve estimate is primarily dependent on the ability to sell the coal at the estimated prices and the actual site operating costs. Site operating costs have been reviewed internally and reconciled against actual performance.</li> </ul>

#### Appendix A:

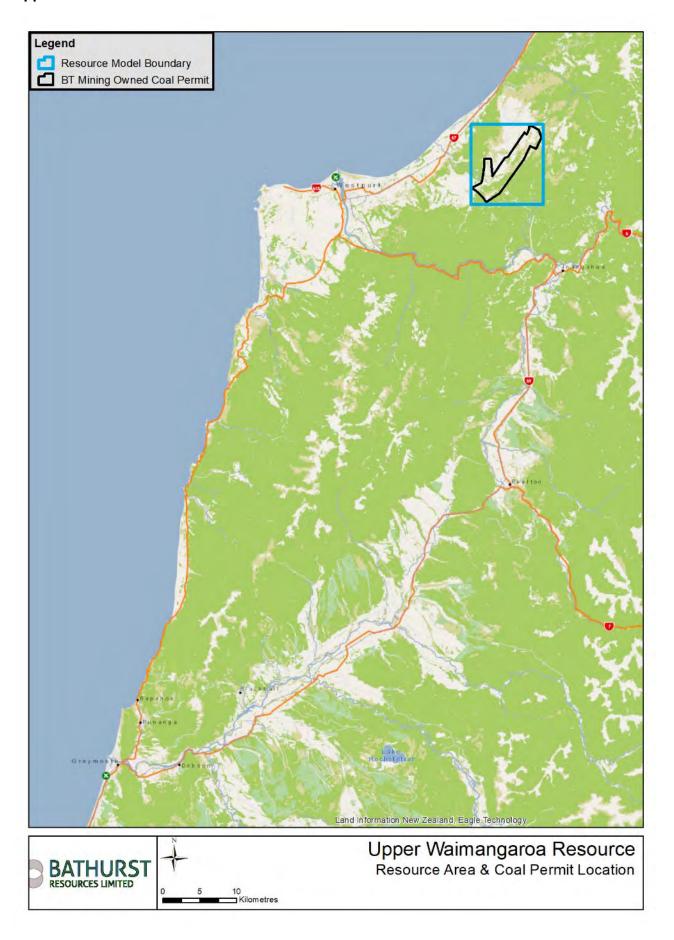


Figure 1: Location Plan

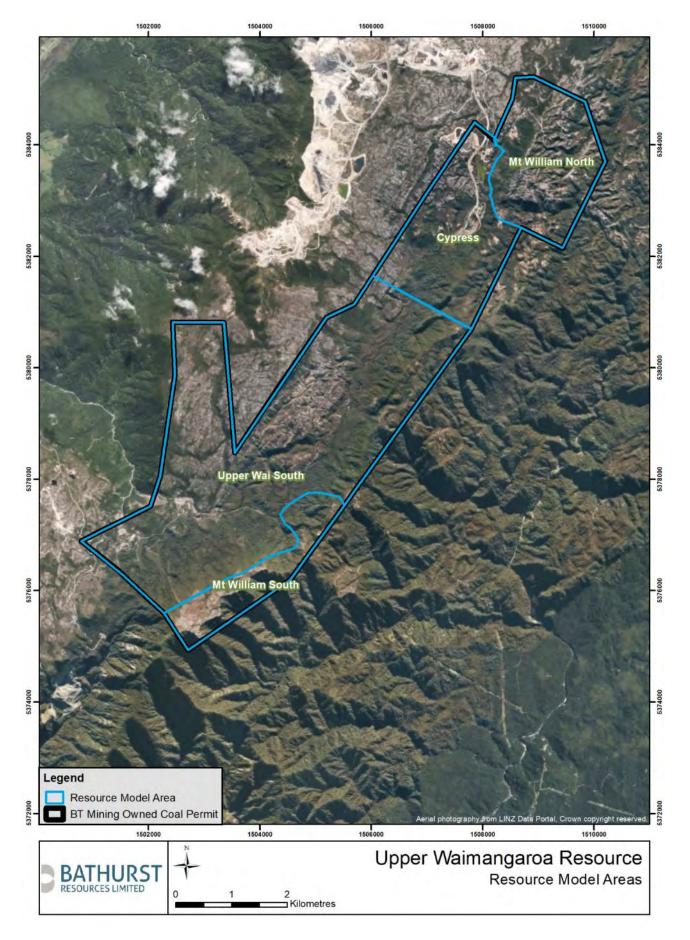


Figure 2: Resource Model Areas

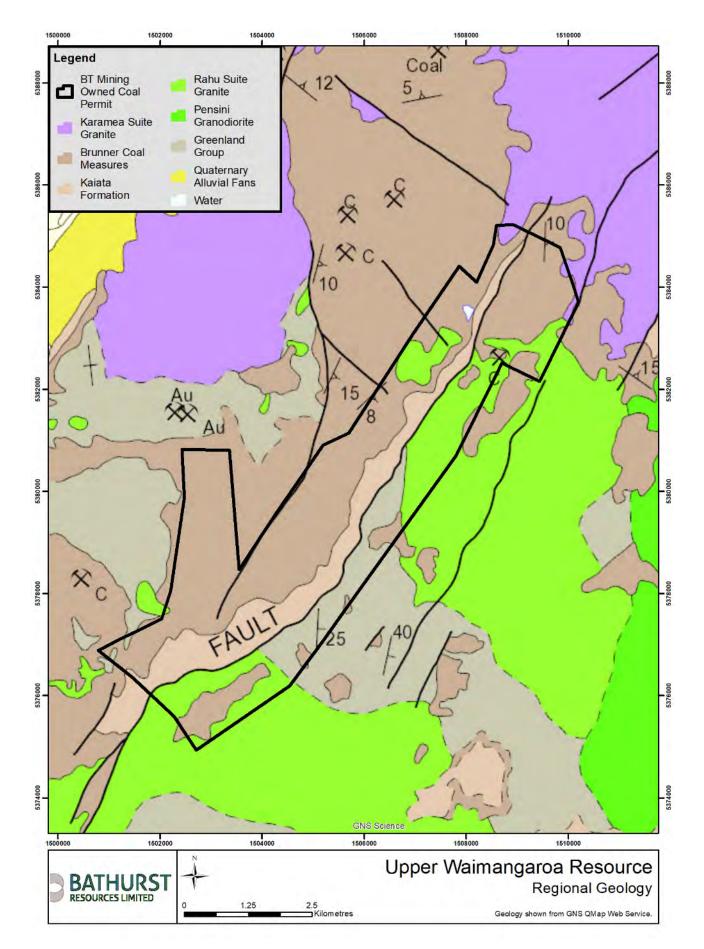


Figure 3: Regional Geology

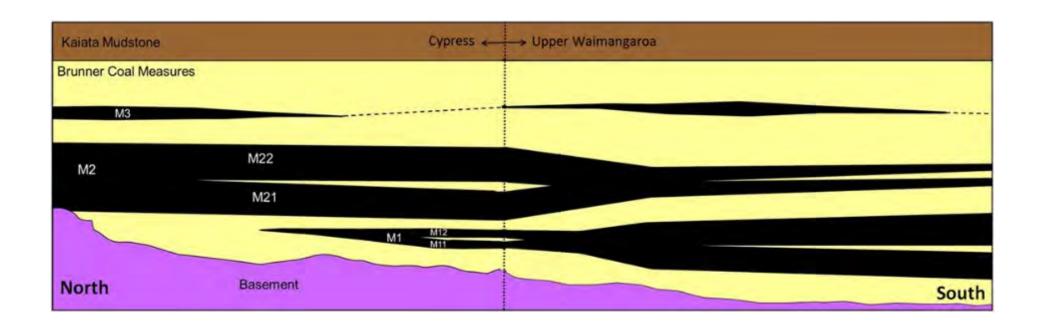


Figure 4: Schematic diagram of Upper Waimangaroa Coal Seam naming convention and correlation alongside that of the Cypress deposit to the north

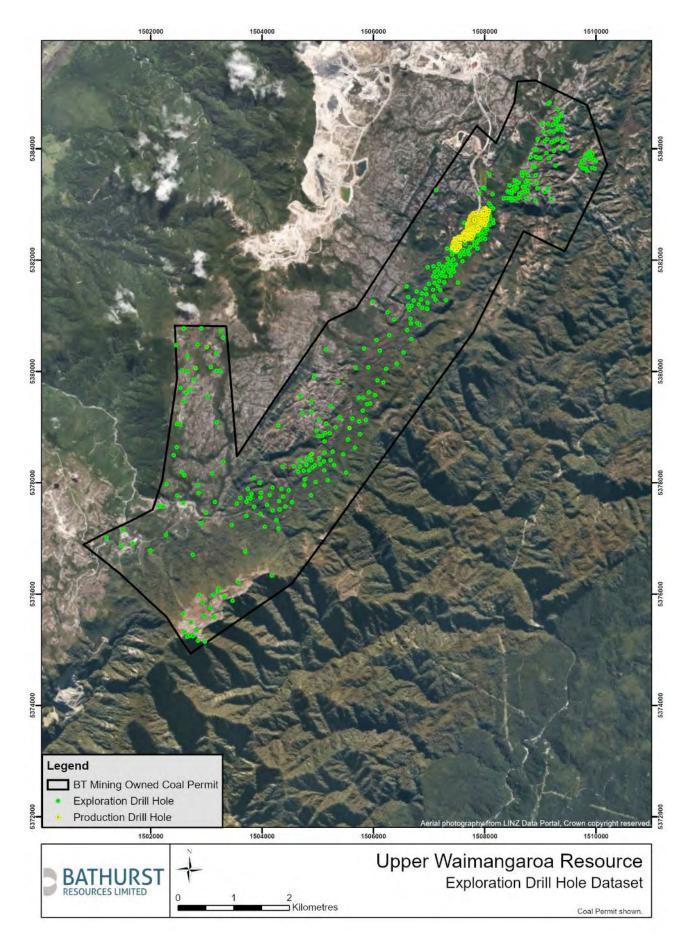


Figure 5: Plan showing the drilling dataset used to produce the resource model

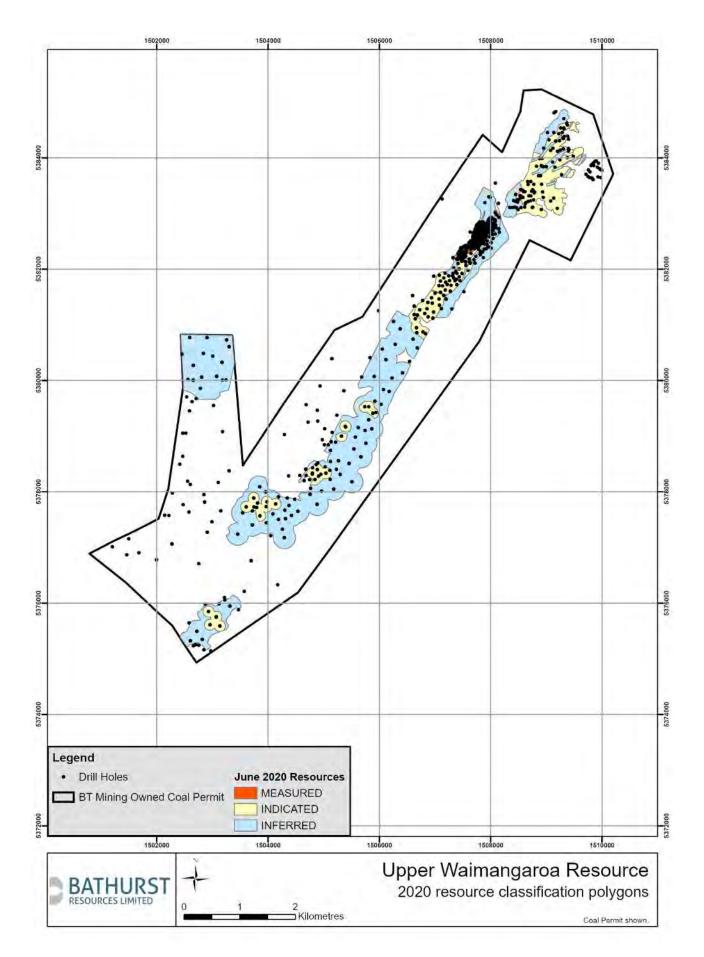


Figure 6: Plan showing the 2020 resource classification polygons

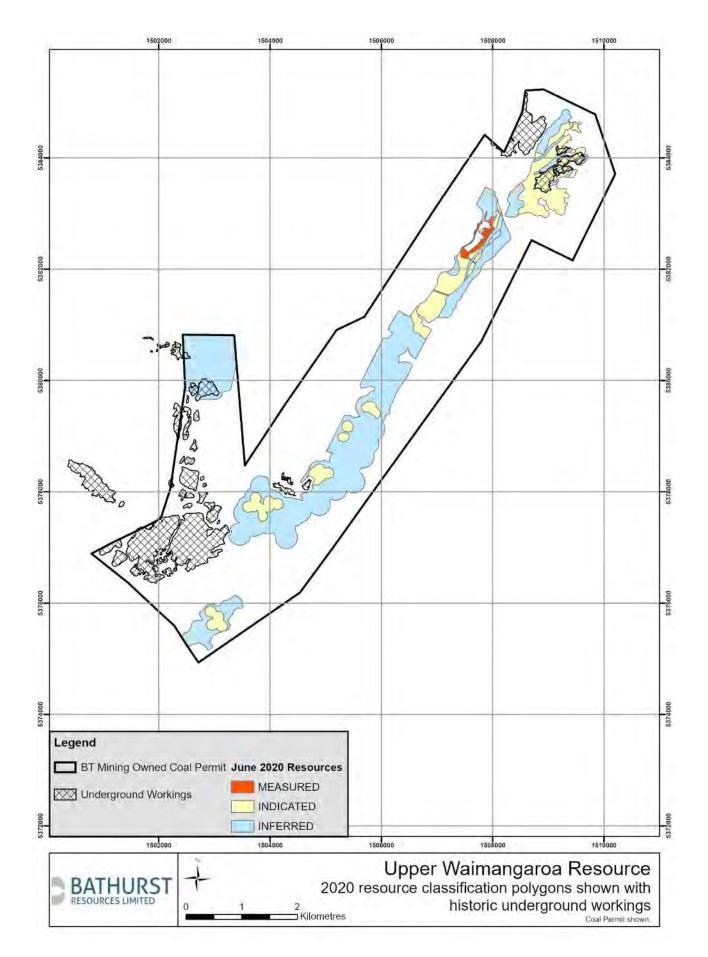


Figure 7: Extent of Underground Workings and 2020 resource classification

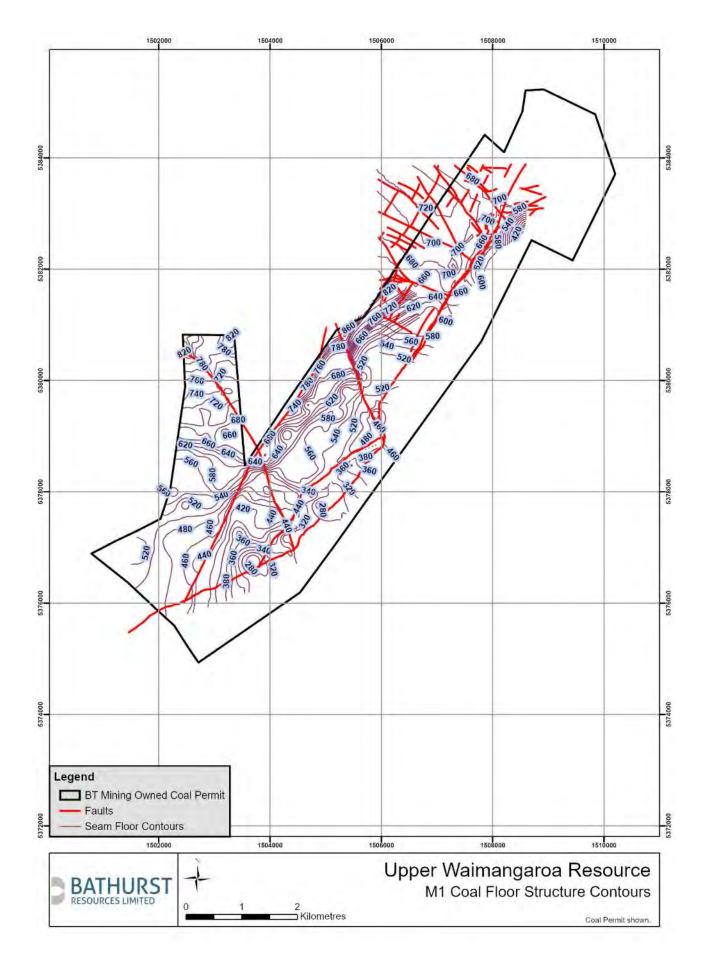


Figure 8: Plan showing the structure contours of coal seam floor

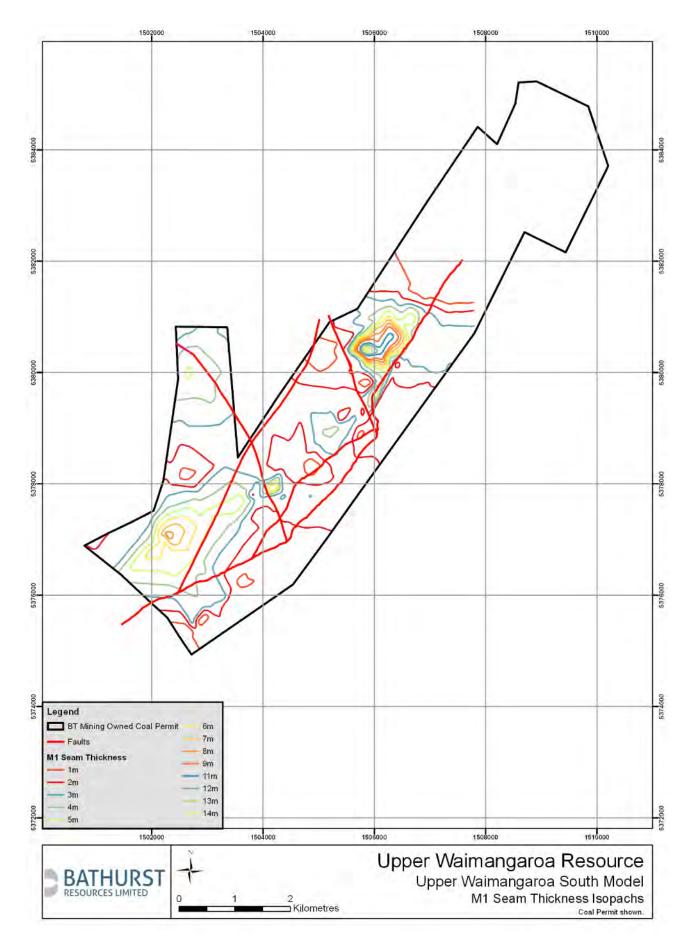


Figure 9: Plan showing full seam thickness (M1 Coal Seam) contours for the Upper Wiamangaroa South area

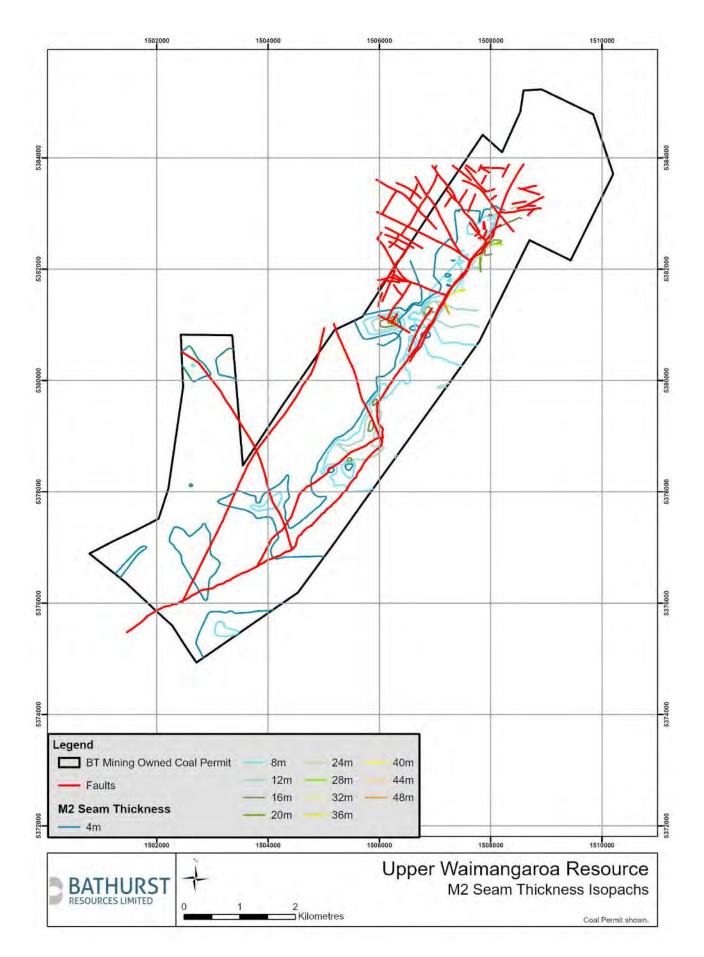


Figure 10: Plan showing full seam thickness (M2 Coal Seam) contours

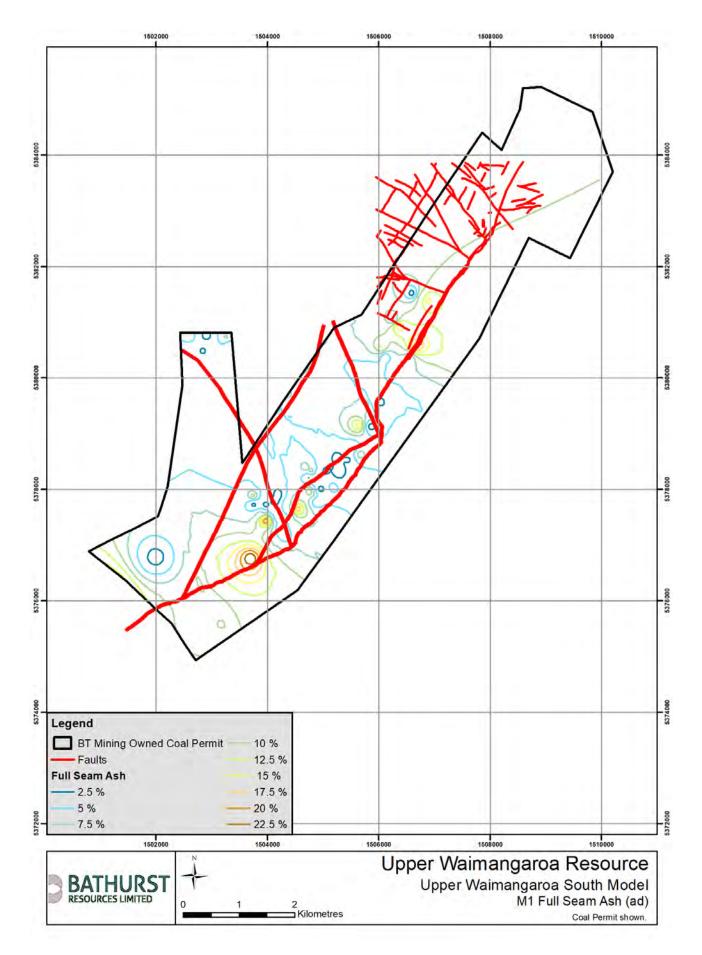


Figure 11: Plan showing in-situ full M1 seam ash on an air dried basis across the Upper Waimangaroa South resource



Figure 12: Plan showing in-situ full M2 seam ash on an air dried basis across the Cypress resource area

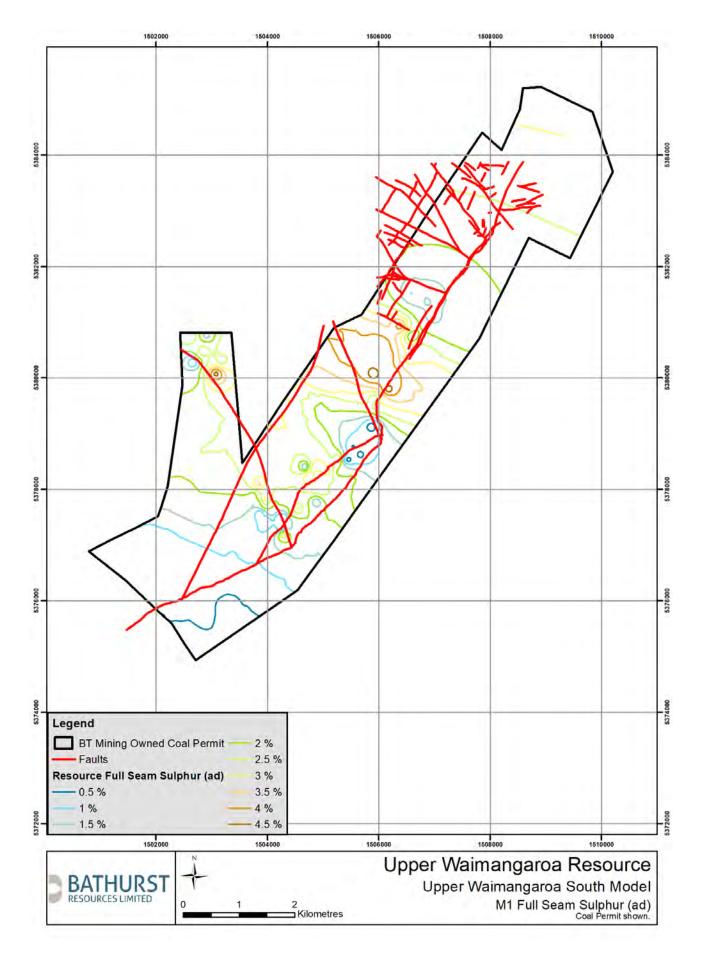


Figure 13: Plan showing full M1 seam sulphur on an air dried basis across the Upper Wiamangaroa South resource

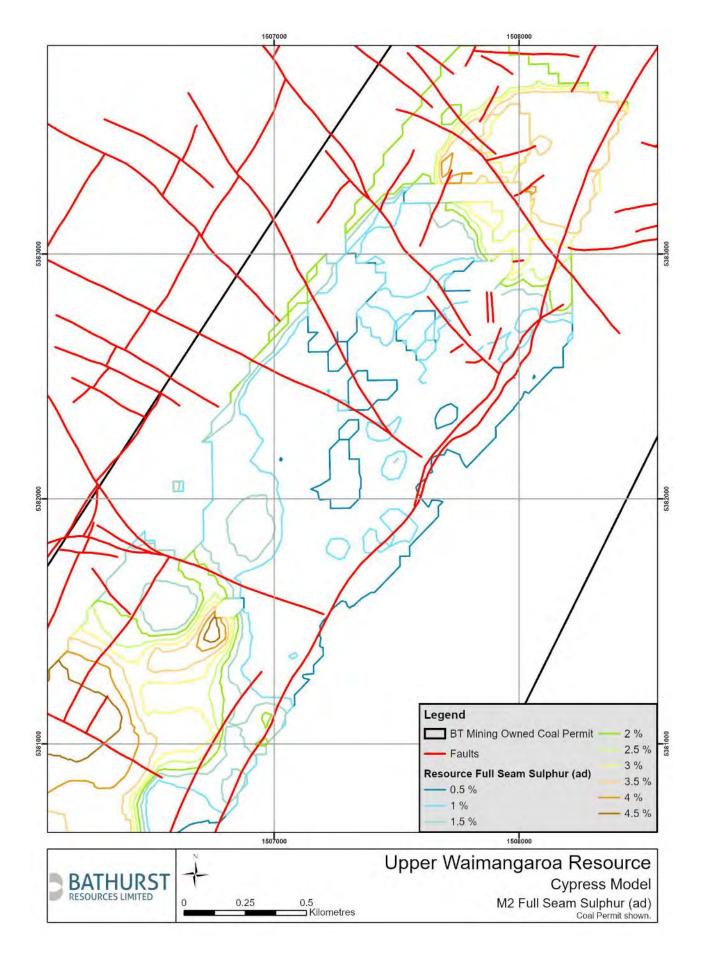


Figure 14: Plan showing full M2 seam sulphur on an air dried basis across the Cypress resource

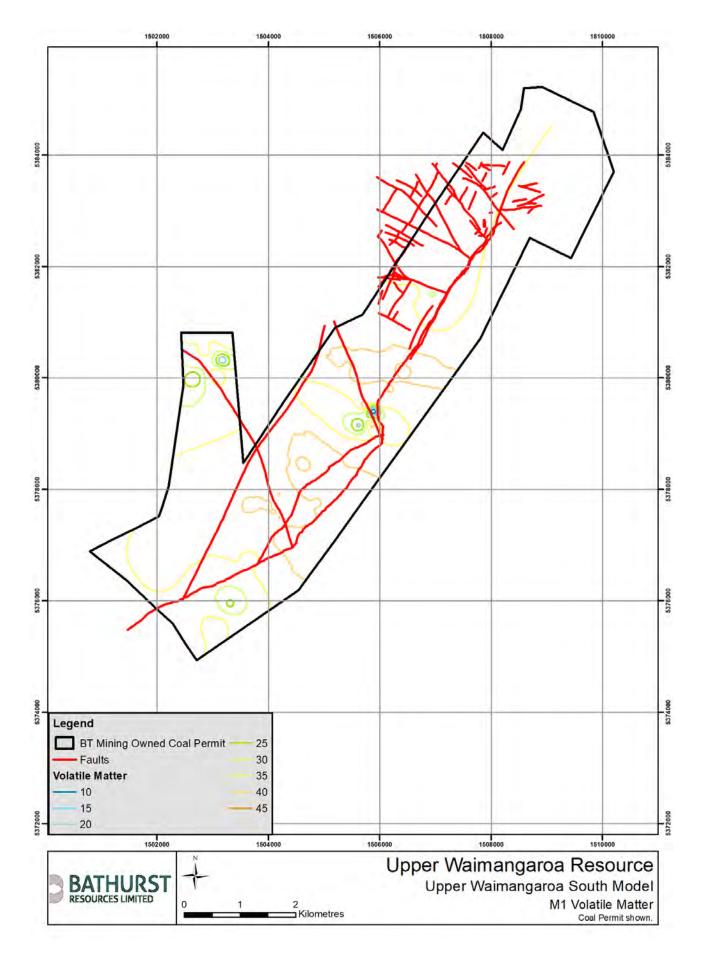


Figure 15: Plan showing full M1 seam Volatile Matter on an air dried basis across the Upper Wiamangaroa South resource

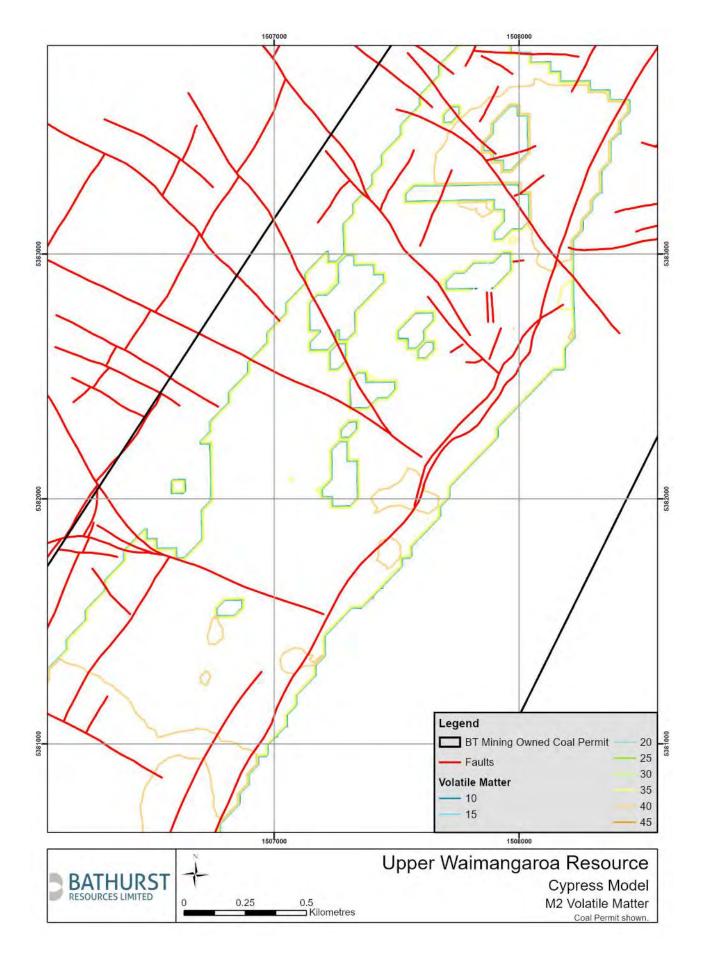


Figure 16: Plan showing full M2 seam Volatile Matter on an air dried basis across the Cypress resource

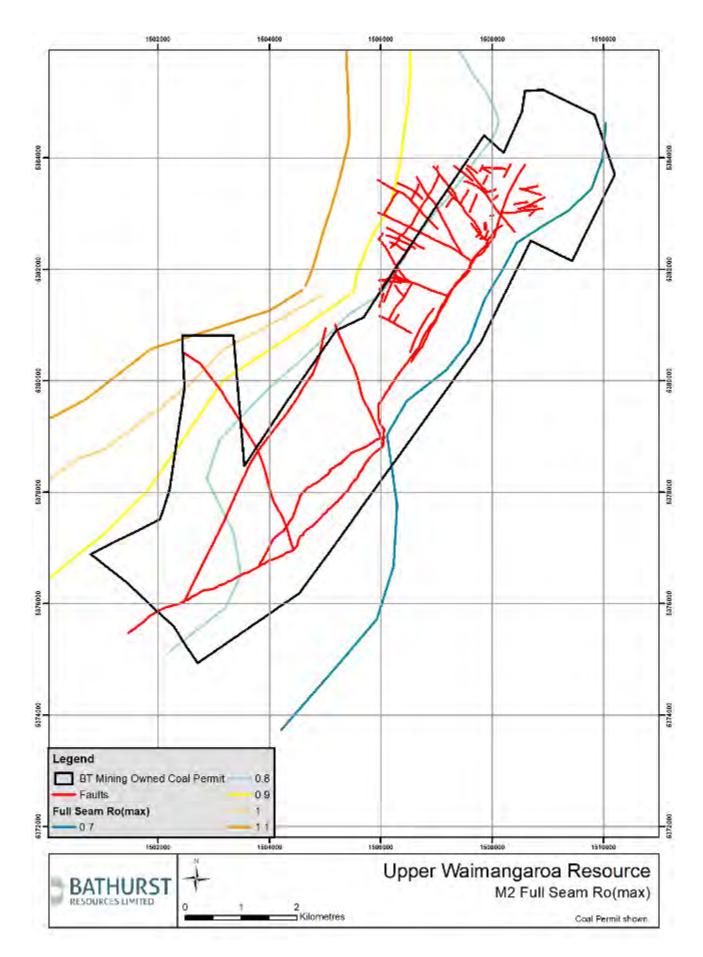


Figure 17: Plan showing the Romax for the M2 Coal Seam

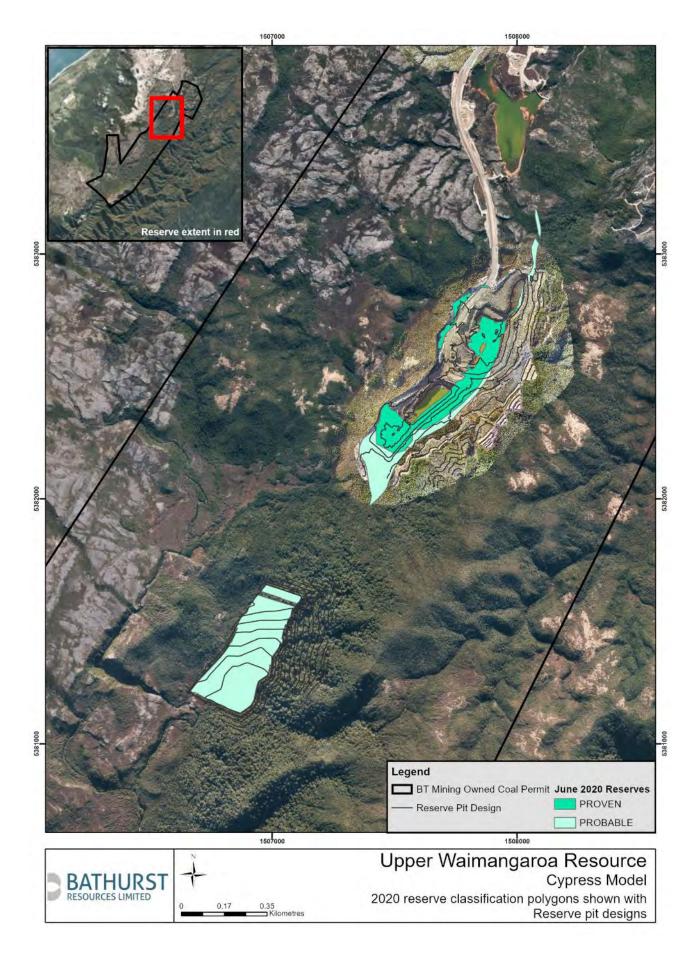


Figure 18: Upper Waimangaroa reserves pit shells

## JORC Code, 2012 Edition - Table 1 Report for the North Buller Project 2020

Section 1 Sampling Techniques and Data

Criteria	Commentary
Sampling	North Buller is an historic mining district, with recorded coal production spanning over a century.
techniques	Historic exploration data of varying quality is available for much of the area.
	Modern exploration campaigns include data obtained since 2009:
	<ul> <li>3 HQ Triple Tube core (TTC) holes drilled by L&amp;M Ltd in 2009.</li> </ul>
	<ul> <li>96 PQ TTC holes, reduced to HQ where necessary. Drilled from 2012 – 2013.</li> </ul>
	o 3 outcrop trenches.
	• Drilling has aimed to infill areas around zones of historic workings that are lacking quality data
	and to test reliability of historic data. Drilling has been concentrated on a few key areas primarily
	due to ease of access and prospects for development.
	<ul> <li>Coal sampling was based on the Bathurst Resources Ltd (BRL) Coal Sampling procedures.</li> </ul>
	• Coal quality ply samples have been selected on all coal logged by a geologist where the geologist
	had 95% confidence that the ash will fall below 50%. Material with an estimated ash over 50%
	was not sampled unless the material was a parting of < 0.1m in thickness within a coal seam
	whereby it would be included within a larger ply sample.
	<ul> <li>Ply samples were generally taken over intervals no greater than 0.5m.</li> </ul>
	All analytical data has been assessed and verified before inclusion into the resource model.
Drilling	<ul> <li>BRL managed drilling campaigns have utilised the following drilling methods:</li> </ul>
techniques	<ul> <li>Full PQ triple tube core (TTC), in many cases overlying strata was open-holed through.</li> </ul>
	<ul> <li>HQ triple tube core only where necessary.</li> </ul>
	Washed drilled overburden where applicable.
	Historic drilling techniques included:      Do triale to be a seen as a
	o PQ triple tube core.
	o HQ triple tube core.
	<ul><li>NQ triple tube core.</li><li>Washed drilled.</li></ul>
	<ul> <li>Washed drilled.</li> <li>All exploration drillholes were collared vertically.</li> </ul>
	<ul> <li>Recent drilling campaigns utilised PQ sized drilling to maximize core recovery.</li> </ul>
Drill sample	Core recovery was measured by the logging geologist for each drillers run (usually 1.5m) in each
recovery	drillhole. If recovery of coal intersections dropped below 85% the drillholes required a re-drill.
·	Drillers were paid an incentive if coal recovery was above 90%.
	<ul> <li>In some instances the recovery of thin rider seams (&lt; 0.5m) has been poor due to the soft friable</li> </ul>
	nature of the coal. Therefore the sample dataset for the rider seams and lower seam is not as
	evenly spatially distributed as the main seam.
	<ul> <li>Average total core recovery over the recent drilling campaigns in North Buller was 93%.</li> </ul>
	• Where small intervals of coal were lost, and where geophysics indicated strongly that coal was
	lost, ash values were estimated using the results of overlying and underlying ply samples and
	the relative response of the open-hole density trace.
Logging	BRL has developed a standardised core logging procedure and all core logging completed by
	BRL has followed this standard.
	All modern drill core has been geologically and geotechnically logged by geologists under the
	supervision and guidance of a team of experienced exploration geologists.
	As much data as possible has been logged and recorded including geotechnical and rock
	strength data.
	All core was photographed prior to sampling. Depth metre marks and ply intervals are noted on
	core in each photograph.
	Down-hole geophysical logs were used to aid core logging.
	BRL aimed to geophysically log every drillholes that intersected coal providing that downhole
	conditions and operational constraints allowed. The standard suite of tools run included density,

#### Criteria Commentary dip meter, sonic, and natural gamma. Where drillholes conditions were poor or mine workings were intersected only in-rods density was acquired. In-rods density produced a reliable trace for use in seam correlation and depth adjustment but was not used for ash correlations. Down-hole geophysics were used to correlate coal seams, to confirm depths and thickness of coal seams and to validate drillers' logs. Geophysics were also used to accurately calculate recovery rates of coal. The geophysical logging company maintained and calibrated all tools as per their internal calibration procedures. Additionally, geophysics equipment was calibrated and tested using a calibration hole on the Denniston Plateau with known depth to coal, thickness and quality. These calibration methods are deemed to be sufficient as both sites host the same Brunner Coal Measures. Sub-sampling For all exploration data acquired by BRL, an in-house detailed sampling procedure was used. techniques Sampling and sample preparation are consistent with international coal sampling methodology. and sample Ply samples include all coal recovered for the interval of the sample. Core was not cut or halved. preparation Ply sample intervals were generally 0.5m unless dictated by thin, split or parting thickness. All drilling in the recent campaigns have been completed using triple tube cored holes. No chip or RC samples were taken in these campaigns. Assay samples were completed at the core repository after transport from drill site in core boxes. Coal intervals were wrapped at the drill site prior to transport. Samples were taken as soon as practicable and stored in a chiller until transported to the coal quality laboratory. A series of random duplicate samples representing 4% of the total number of samples from North Buller has been completed by CRL Energy ltd. The results of this duplicate testing were comparable to that reported by SGS New Zealand Limited (SGS). Geochemical sampling for overburden characterisation has been completed by taking representative samples of core at set 5m intervals above the coal seam in a subset of drillholes. Quality of All coal quality testing completed for BRL has been carried out by accredited laboratory SGS. assay data SGS have used the following standards for their assay test work: and laboratory Proximate analysis (ASTM 7582) tests Ash (ISO 1171) 0 Volatile matter (ISO 562) $\circ$ Inherent moisture (ISO 5068) 0 Total sulphur analysis (ASTM 4239) Crucible swell tests (ISO 501) 0 Calorific value (ISO 1928) 0 Loss on drying data (ISO 13909-4) Relative density (AS 1038.21.1.1) CRL completed much of the assay test work for samples collected prior to BRL taking over the • CRL used the following standards for their test work: Inherent moisture (ISO 117221) Ash (ISO 1171) Volatile matter (ISO 562) 0 Calorific value (ISO 1928) 0

tested using the following standards:

Test Work

Loss on air drying

Inherent Moisture

(ISO 13909-4)

(ASTM D 7582 mod)

All analysis was undertaken and reported on an air-dried basis unless stated otherwise.

BRL has completed a total of 11 composite coal quality samples. Composite samples have been

Crucible swelling index (ISO 501)
 Both SGS and CRL are accredited laboratories.

Criteria	Commentary						
	Ash	(ASTM D 7582 mod)					
	Volatile Matter	(ASTM D 7582 mod)					
	Fixed Carbon	by difference					
	Sulphur	(ASTM D 4239)					
	Swelling Index	(ISO 501)					
	Calorific Value	(ISO 1928)					
	Mean Maximum Reflectance All Laboratory Standard Vitrinite (RoMax)						
	Chlorine in Coal	(ASTM D4208)					
	Hardgrove Grindability Index	(ISO 5074)					
	Gieseler Plastometer	(ASTM D 2639)					
	Audibert Arnu Dilatometer	(ISO 349)					
	Forms of Sulphur	(AS 1038 Part 11)					
	Ash Fusion Temperatures	(ISO 540)					
	Ash Constituents (XRF)	(ASTM D 4326)					
	Ultimate Analysis	Laboratory Standard					
sampling and assaying  Location of data points	<ul> <li>Sample assay results have been cross referenced and compared against lithology logs and downhole geophysics data. Results are also inspected by experienced geologists and compared with expected values utilising known coal quality relationships for the North Buller coalfield.</li> <li>Anomalous assay results were investigated, and where necessary the laboratory was contacted and a retest undertaken from sample residue.</li> <li>Three twinned holes have been drilled at the project with consistent results obtained between drillholes.</li> <li>Laboratory data is imported directly into an Acquire database with no manual data entry at eithe the SGS laboratory or at BRL.</li> <li>Assay results files are securely stored on a backup server. Once validated, drillhole information is 'locked' in an Acquire database to ensure the data is not inadvertently compromised.</li> <li>Modern drillholes positions have been surveyed using Trimble RTK survey equipment.</li> <li>Historic mine plans have been georeferenced by locating and surveying historic survey marks</li> </ul>						
Data spacing	and mine portals drawn on mine plans. Some historic mine plans are poorly controlled spatially and a large variance from the current georeferenced images is possible.  New Zealand Trans Mercator 2000 Projection is used by BRL for most of its project areas. NZTM is considered a standard coordinate system for general mapping within New Zealand. Historic data has been converted from various local circuits and map grids using NZ standard cadastral conversions.  A LiDAR survey was carried out over the North Buller area in December 2012. This LiDAR data provides very accurate topographic data used in the model. Contractor's specifications state that, for the choice of sensor and operating settings used for this project, the LiDAR sensor manufacturer's specification states 0.15m (1-sigma) horizontal accuracy and 0.1m (1-sigma) as the open ground elevation accuracy.  Surveyed elevations of drillholes collars are validated against the LiDAR topography and orthocorrected aerial photography. Historic hole collar elevations have been compared to the LiDAR surface and most are within 1m to 2m of the surface. There are however a small number of historic holes with a large discrepancy in the RL of the collar and the LiDAR surface. This discrepancy may be due in part to earthworks.						
Data spacing and distribution	• Drillhole spacing in North Buller is not homogenous. Recent drilling has targeted areas surrounding historic underground workings and where land access has been available. This has produced three areas of relatively high density drilling, namely Charming Creek, Chasm Creek						

Data spacing for the three drilling areas has been estimated by calculating the radius required to fill the total area of each project divided by number of drillholes within that area. Average drillholes

Central and Coal Creek blocks.

spacing for these areas is summarised below.

#### Criteria Commentary Charming Creek has an estimated average spacing of 125m. Chasm Creek Central has an estimated average spacing of 100m. Coal Creek area has an estimated average drillholes spacing of 125m. Average drillholes spacing for the entire project area is approximately 210m. Drillholes spacing is not the only measurement used by BRL to establish the degree of resource uncertainty and therefore the resource classification. BRL uses a multivariate approach to resource classification. The current drillholes spacing is deemed sufficient for coal seam correlation and resource estimation purposes within targeted areas. Geostatistics has been applied to the North Buller dataset but variography results were poor due to the uneven distribution of drillholes and structural complexity of parts of the deposit. Full seam variography of ash indicated a maximum distance correlation of ~500m and therefore no resources have been classified where distance to nearest samples are greater than 500m. The samples database is composited to 0.5m sample length prior to grade estimation. Any samples with composited length of less than 0.1m are not included in the estimation. Compositing starts at the top of seam and small samples are not distributed or merged. Orientation of All exploration drilling has been completed with a vertical orientation. Down hole deviation data data in was acquired by BRL during modern campaigns and showed little to no deviation in those holes. relation to Holes without deviation plots are assumed to be vertical. geological Any deviation from vertical is not expected to have a material effect on geological understanding structure as the average drillholes depth in the dataset is 45m with the deepest coal intersection of 116m. At a depth of 60m a 1° deviation would produce a horizontal deviation of 1m at the end of hole and a negligible thickness deviation. The majority of the deposit presents a shallow seam dip between 5° – 10°. Vertical drilling is considered to be the most suitable drilling method of assessing the coal resource at North Buller. Sample Stringent sample preparation and handling procedures have been followed by BRL. Ply samples security are taken and recorded from drill core, bagged and placed within a locked chiller prior to being dispatched for analysis. It is not considered likely that individual coal samples face a risk of theft or sabotage as coal is a bulk commodity with little value for small volumes of coal from drill core. Audits or BRL has reviewed the geological data available and considers the data used to produce the reviews resource model reliable and suitable for the purposes of generating a resource estimate. Results of a duplicate sample testing programme comparing SGS and CRL showed a strong correlation between labs. Senior BRL geologists undertake audits of the sample collection and analysis.

#### Section 2 Reporting of Exploration Results

Criteria	Commentary							
Mineral tenement and land tenure status	<ul> <li>BRL owns and operates two coal exploration permits in the North Buller area, northwest of Westport, New Zealand.</li> <li>BRL has 100% ownership in the following coal permits:</li> </ul>							
Status	Permit Operation Expiry							
	Mining Permit 56233 Coal Creek 22/03/2031							
	<ul> <li>BRL has applied for an extension of land (EOL 56233.03) from Mining Permit 56233 to replate Exploration Permit 40628 in the North Buller area and it is reasonably expected that this per application will be granted.</li> <li>The acquisition of the EP40628 and EP51078 permits (and any subsequent permits over same area) from L&amp;M includes a life of mine royalty based on a fixed percentage of FOB reven MP 56233 and the EOL 56233.03 are subsequent permits.</li> <li>The majority of the land in the North Buller area is Crown land administered by the Departm</li> </ul>							

#### Criteria

#### Commentary

of Conservation (DoC) as Ecological Areas (Section 21 Conservation act 1987) and Stewardship Areas (Part V Section 25 Conservation Act 1987). These areas are managed to protect the natural and historic values of the areas. Stewardship areas can be disposed of, but disposal is subject to a public process and it must be clear that their retention and continued management would not materially enhance the conservation or recreational values of adjacent land.

Another large landowner within the study area is Ngai Tahu. BRL currently has an agreement
with Ngai Tahu to provide access to land for exploration purposes and it is reasonably expected
that access for mining would be able to be negotiated.

## Exploration done by other parties

- Historic geological investigations and reports for the North Buller area have been compiled spanning the past 120 years.
- The historic drilling database includes the following drillholes compiled from historical data records.

Years	Agency	Range of Collar ID	# Holes	Drilling Method	# Holes in structure model	# Holes in quality model	Geophysic s Available
1907	NZ State Coal - Seddonville Colliery	431 - 436	6	unknown	4	0	0
1910 - 1912	Mines Department	415 - 430	16	unknown	16	0	0
circa 1918	Harbour Board	403, 437, 438	3	unknown	3	0	0
1896 - 1936	Westport - Cardiff Coal Co.	*	7	unknown	7	0	0
1931-1932	Cardiff Bridge Co- op Party	*	3	Diamond Core	1	0	0
unknown	unknown	401 - 402	2	unknown	1	0	0
Pre 1953	Charming Creek Mine	439 - 450	12	unknown	11	0	0
Pre 1968	Charming Creek Mine	451 - 462	12	unknown	10	0	0
unknown	Cardiff or Coronation Coal	463 - 469	7	unknown	6	0	0
unknown	Cardiff Holdings	470 - 474	5	unknown	1	0	0
circa 1964	Coal Creek Mine	475 - 481	7	unknown	4	0	0
Unknown	unknown	491 - 493	3	unknown	3	0	0
Pre 1952	unknown	404 - 413	10	unknown	7	0	0
Pre 1952	shaft	414	1	unknown	1	0	0
1986	Ministry of Energy	1432, 1442 - 1445	5	HQ core	5	4	5
1978	MWD	482 - 490	10	Diamond Core	9	0	0

- All historic data has been validated against original source documents by L&M, Golder Associates (NZ) Ltd and again by BRL staff post acquisition of the project. Where data was deemed unreliable it was removed from the relevant resource model dataset.
- BRL is continuing to source further historic plans and reports from a number of data libraries around New Zealand.

#### Geology

- The North Buller project is located in the Buller Coalfield, New Zealand.
- The Buller Coalfield is at the northern end of the Paparoa Trough, a north northeast trending

Criteria	Commentary	
	<ul> <li>half-graben that subsided in the Eocene and was subsequently uplifted in the Cenozoic.</li> <li>The defined resource is contained within the Eocene aged Brunner Coal Measures. The coal measures consist of a fluviatile sequence of fine to very coarse sandstones, siltstone, mudstone and coal seams. The deposit generally contains a single seam deposited in elongate pods with some localised splitting of the seam and, in some areas, a pronounced rider seam package. The coal thickness can be up to 11m but generally averages 3-4m in thickness.</li> <li>The coal measures thin towards the east and thicken to the west where a thick conglomerate forms the base of the formation.</li> <li>Overlying the coal measures in most areas is the Kaiata Formation which consists of marine, slightly carbonaceous and calcareous mudstones.</li> <li>Quaternary river gravel deposits are scattered throughout the project area.</li> <li>Overburden thickness is generally around 30-40m but depths range from zero at the outcrop to over 300m in the northern extent of the model.</li> </ul>	
Drillholes Information	<ul> <li>Individual drillhole results are not tabulated and presented in this report however all drillholes data that pertains to the target coal seams has been loaded and modelled in the geological computer model used to estimate coal resources.</li> <li>The exclusion of this information from this report is considered to not be material to the understanding of the deposit.</li> <li>Incorporation of deviation data is not considered necessary, due to the gentle dips found in the area and shallow drilling methods resulting in insignificant deviation recorded in the exploration boreholes.</li> </ul>	
Data aggregation methods	<ul> <li>The maximum ash cut-off for building the North Buller structure model was set at 50% however, due to various reasons, some thin assay samples where ash is greater than 50% are included in the coal quality dataset due to the structure model including the interval within a coal seam.</li> <li>Resources have been reported with an ash cut-off of 25%.</li> <li>Seams have been sampled on a ply-by-ply basis with ply boundaries determined by reconciliation against down hole geophysics.</li> </ul>	
Relationship between mineralisation widths and intercept lengths	All exploration drillholes have been drilled vertically and the coal seams are generally gently dipping. Therefore the reported seam intercept thickness is representative of the true seam thickness.  Dip meter and deviation plots are available for some holes. For those without this data it is assumed that a vertical orientation is achieved and, as most coal intersections are less than 100m in depth, any deviation from vertical would produce only a very minor effect on the reported depth to coal and coal thickness.	
Diagrams	Diagrams can be found in the Appendix A for each of the following:  Location map  Map showing Mining Permits  Map showing mineral ownership  Map showing land rights  Map of historic workings  Map showing drillhole dataset  Map of Resource Classification  Map of coal seam floor contours  Map of coal seam ash contours  Map of coal seam sulphur contours	
Balanced reporting	<ul> <li>Exploration drilling results have not been reported. This has avoided any issues with unbalanced or biased reporting.</li> <li>The Competent Person does not believe that the exclusion of this comprehensive exploration data within this report detracts from the understanding of this report or the level of information provided.</li> </ul>	
Other substantive	Geotechnical logs and samples were taken by the geologist during all exploration by BRL. Geotechnical logs identified defect types, angles and character through cored intervals.	

Criteria	Commentary	
exploration data	<ul> <li>BRL has tested 45 samples for overburden classification for acid forming and neutralising potential in North Buller. These tests indicate that the majority of overburden is acid neutralising.</li> <li>Further overburden characterisation testing will be conducted prior to any mining proposal.</li> </ul>	
Further work	<ul> <li>BRL has been granted an access arrangement from the Department of Conservation (DoC) for drilling activities on land administered by DoC in the North Buller project area. BRL is currently focusing resources on its Escarpment project and therefore no drilling is planned for North Buller in the near future.</li> <li>Field mapping is continuing in North Buller to confirm future drilling targets outside of the current resource areas.</li> <li>A bulk sample is planned to be taken from within the North Buller project area for marketing purposes.</li> </ul>	

## Section 3 Estimation and Reporting of Mineral Resources

Criteria	Commentary	
Database integrity	<ul> <li>All historic and legacy datasets have been thoroughly validated against original logs and results tables.</li> <li>BRL utilises an Acquire database to store and maintain its geological exploration dataset.</li> <li>The Acquire database places explicit controls on certain data fields as they are entered or imported into the database such as overlapping intervals, coincident samples, illegal sample values, standardised look-up tables for logging codes etc.</li> <li>Manual data entry of assay results is not required as results are imported directly.</li> </ul>	
Site visits	<ul> <li>Hamish McLauchlan (the Competent Person) has worked as a senior geologist for over 10 years in the Buller coalfield.</li> <li>Hamish is familiar with the local and regional geology and style of deposit within the North Buller region.</li> </ul>	
Geological interpretation	<ul> <li>BRL has confidence in the geological model and the interpretation of the available data. Confidence varies for different areas and this is reflected by the resource classification.</li> <li>BRL uses a multivariate approach to resource classification which takes into account a number of variables.</li> <li>BRL considers the amount of geological data sufficient to estimate the resource.</li> <li>Uncertainty surrounds the historic mine workings, both in the quality and quantity of coal extracted and surveying and positioning of underground workings. This is reflected in the resource classification.</li> <li>BRL has used a total of 10 synthetic holes in the structure model which are based on historic drillholes where geo-referencing of the collar locations is poor.</li> <li>Quaternary river gravel deposits overly the coal measures as an unconformity over the northern portion of the project area. Some uncertainty surrounds the depth of weathering and the extent of the gravel deposits. A conservative approach to modeling this Quaternary erosional surface has been used in the model.</li> </ul>	
Dimensions	<ul> <li>The main coal seam varies in thickness from less than 1m thick up to 11m thickness locally.</li> <li>Depth of cover varies from 0m at outcrop to over 300m at the northern boundary of the model.         <ul> <li>Inferred resources include coal to 118m below surface.</li> <li>Indicated resources include coal to 102m below surface.</li> <li>Measured resource includes coal down to 64m below surface.</li> </ul> </li> <li>The deposit roughly covers a 6km by 5km area. The deposit is bounded by the Mokihinui River to the north, and the Glasgow Fault to the east and the Lamplough Fault to the west.</li> </ul>	
Estimation and modeling techniques	<ul> <li>All available and reliable exploration data has been used to create a geological block model which has been used for resource estimation and classification.</li> <li>All exploration drilling data is stored in Acquire and exported into a Vulcan drillholes database. All Mapping data is stored in Acquire and exported in various Vulcan layers. Interpretive data is stored within Vulcan in various layers.</li> <li>A coal horizons definition has been developed and is used in the stratigraphic modeling process.</li> </ul>	

#### Criteria

#### Commentary

- Vulcan 8.2.1 was used to build the structure model. Grid spacing is 10m x 10m. This spacing was selected to be 1/5 of the minimum drill spacing of a targeted area.
- Vulcan's stacking method was used to produce the structure model. This method triangulates a
  reference surface (coal roof) and then stacks the remaining horizons by adding structure
  thickness using inverse distance.
- The maximum triangle length for the reference surface was set to 2,000m.
- Based on geostatistics for full seam thickness, the maximum search radius for inverse distance is 2,000m. The inverse distance power is set to 2, with maximum samples set to 8.
- Structure grids are checked and validated before being used to construct the resource block model.
- Vulcan 8.2.1 is used to build the block model and to grade estimate. The process is automated using a Lava script.
- The coal structure surfaces, along with LiDAR topography surfaces and quaternary unconformity surfaces are used to build the block model. The block dimensions are constructed at 10m x 10m.
   Vertical thickness for coal blocks is 0.5m, whilst overburden blocks are set to 5m maximum thickness.
- Grade estimation is performed utilising Vulcan's Tetra Projection Model. The main seam, and
  two discontinuous rider seams are estimated for ash, sulphur, air-dried moisture and in situ
  moisture, volatile matter, crucible swell index, and calorific value. All qualities are estimated
  simultaneously. A total of 10 search passes are used to grade estimate the model.
- Geostatistics has been performed on the coal quality dataset to examine and define the
  estimation search parameters for each quality. The maximum search radius is set to the
  maximum range of influence found in the semi-variogram for each variable.
- Grade estimation is computed using an inverse distance squared function.
- Various methods have been used to check the validity of the block estimation. This includes
  manual inspection of the model, QQ plots of block model qualities versus the coal quality
  database and other comparison tools.
- Resource tonnages within the model have been discounted where the resource falls within an historic underground workings area. The primary mining method utilised historically in North Buller area is Bord and Pillar mining, however the Charming Creek mine and other mines used a hydro extraction method beginning in the mid-1950s. Three different classifications have been attributed to the historic workings, with each classification having a different extraction rate. Historic extraction rates are estimated using mining extraction reports and tonnage reports. The extraction rates used to discount coal tonnages in the resource model are as follows:

Mining Method	Extraction Rate
First worked	35%
Pillars extracted	53%
Undifferentiated	50%

#### Moisture

- Resource tonnages are reported using natural bed moisture, calculated from air-dried density, air-dried moisture and in situ moisture using the Preston Sanders equation.
- Block air-dried density is calculated from the block air-dried ash value using the ash-density relationship derived from the project dataset.

## Cut-off parameters

- Structure grids have been developed based on a 50% ash cut-off. Some higher ash samples are
  retained within the coal quality dataset to allow simplification of the seam model where higher
  ash partings become more abundant.
- No lower cut-off has been applied. There is an inherent minimum limit to ash samples in modern results due to a laboratory lower detection limit of 0.17%.
- Coal resources are reported down to a seam thickness of 0.5m (one block) with an ash cut-off of 25%.

# Mining factors or assumptions

- Minimum seam thickness is set at 0.5m or one block in height. An ash cutoff of 25% is used for reporting resources.
- No other mining factors such as strip ratios, mining losses and dilutions have been applied when developing the resource model.

## Criteria Metallurgical factors or

assumptions

#### Commentary

- BRL understands that as the majority of the reported resource has a high sulphur content, the North Buller coal will likely require blending with a low sulphur coal before a saleable product is obtained.
- No other metallurgical assumptions have been applied in estimating the resource.

## Environmental factors or assumptions

- Any open pit mining and coal transport will be conducted amid environmentally and culturally sensitive areas. The project area is a likely habitat for endangered snail and kiwi species. High rainfall rates, potentially acid-generating overburden and historical acid mine drainage are all items that will have to be considered in future prefeasibility studies.
- Environmental values of the project area ranges from low to high. Low values relate to devegetated and exotic forest areas owned and managed by Ngai Tahu, and terrace and river flat pastoral farming operations. Areas of high environmental values incorporate the DoC managed Ecological Areas (Section 21 Conservation act 1987) and the Charming Creek Walkway.
- Current overburden characterisation testing has shown that the majority of Kaiata Mudstone overburden is acid-neutralising. This material could be used to counteract any acid forming material derived from the Brunner Coal Measures.
- No other environmental assumptions have been applied in developing the resource model.

#### **Bulk density**

- A total of 108 relative density (air-dried) sample results are available for the North Buller project area taken from 19 drillholes.
- The relative density samples are not well distributed throughout the project area however the sample set covers a full range of ash values from 0.92% to 61.6%.
- From this dataset an ash-density curve was generated with a coefficient of determination of R<sup>2</sup>=0.8982.

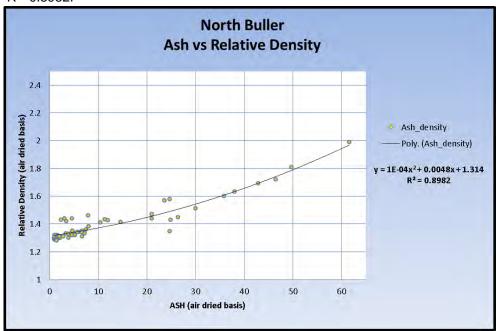


Figure 1: Ash – Density relationship for North Buller project area.

- After grade estimation, density was calculated using the block ash value and the derived density equation.
- An in situ density value was then computed using the Preston Saunders method.
- In situ moisture determinations have been collected from drill core ply samples.

#### Classification

- BRL classifies resources using a multivariate approach.
- Coal resources have been classified on the basis of geological and grade continuity balanced by relative uncertainties surrounding historic underground extraction and proximity to faults.
- Closely spaced drilling with valid samples increases the confidence in resource assessments.
- The confidence is reduced by:
  - A block being within an underground worked area due to extraction rate uncertainty.
  - A block being within 20m of an underground worked area due to uncertainty with historic survey of the workings and georeferencing of mine plans.

Criteria	Commentary
	<ul> <li>A block being in an area of steep structure dip, usually in areas of large faults.</li> <li>A block lies within an area of thin or splitting seam resulting in uncertainty of geological continuity.</li> <li>If an area is within an historically worked area the resource is considered as Inferred as a minimum.</li> </ul>
Audits or reviews	A comprehensive internal review of the resource model has been carried out by BRL.
Discussion of relative accuracy/confidence	<ul> <li>Statistical comparisons between the resource block model and the coal quality data set have been carried out and are within expected ranges. Some anomalies exist due to non-normal data distribution. Techniques utilised include QQ plots and probability plots.</li> <li>No coal production is currently taking place within the resource area and therefore no reconciliation is available at this time to test the accuracy of the resource model.</li> </ul>

### Appendix A:

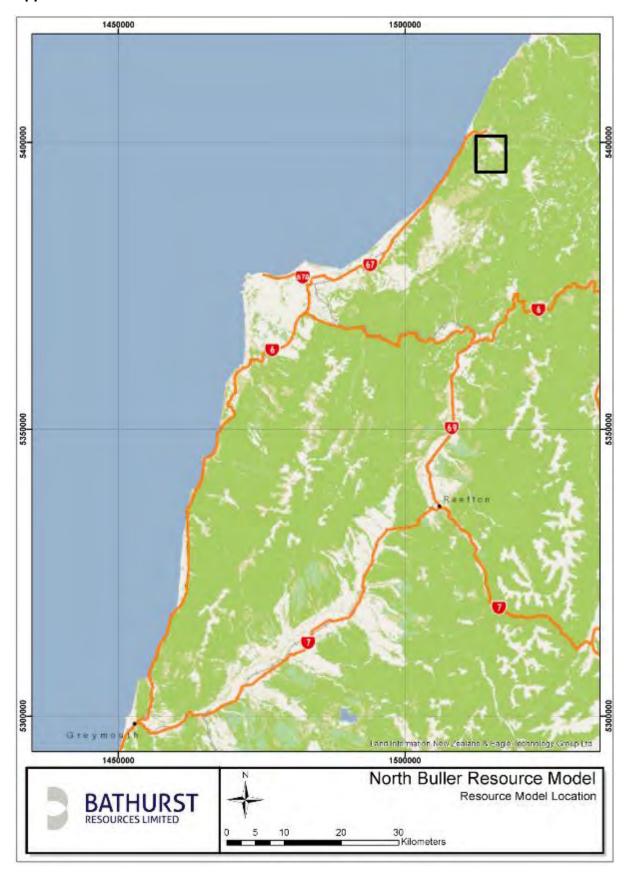


Figure 2: Location of North Buller project and the resource model boundary

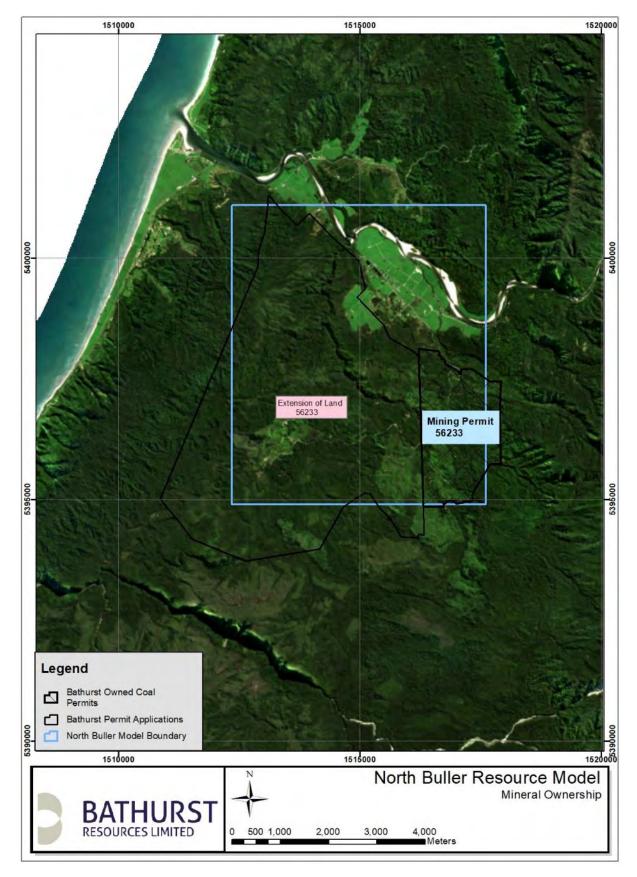


Figure 3: Plan showing BRL owned coal permits in North Buller

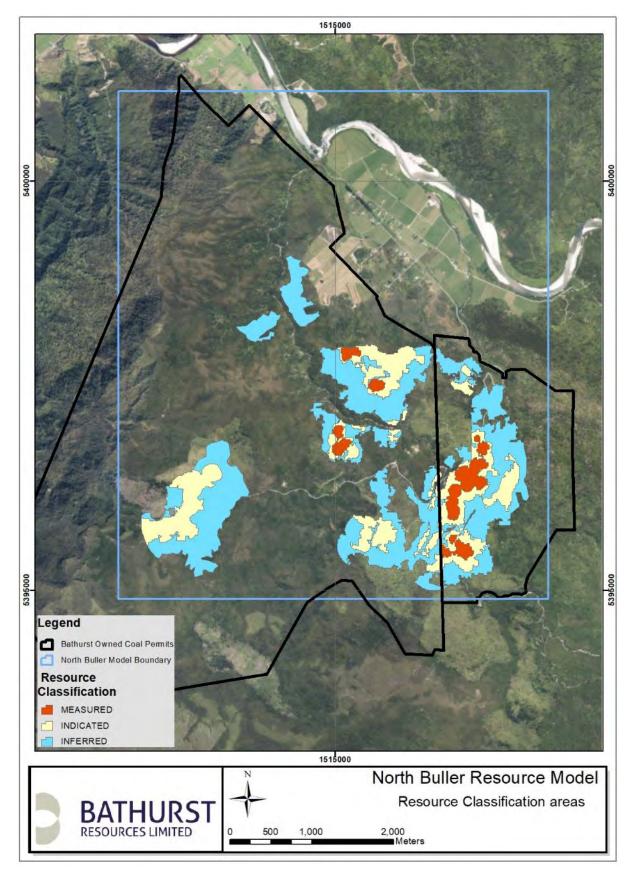


Figure 4: Plan showing the mineral ownership and resource areas for the North Buller project

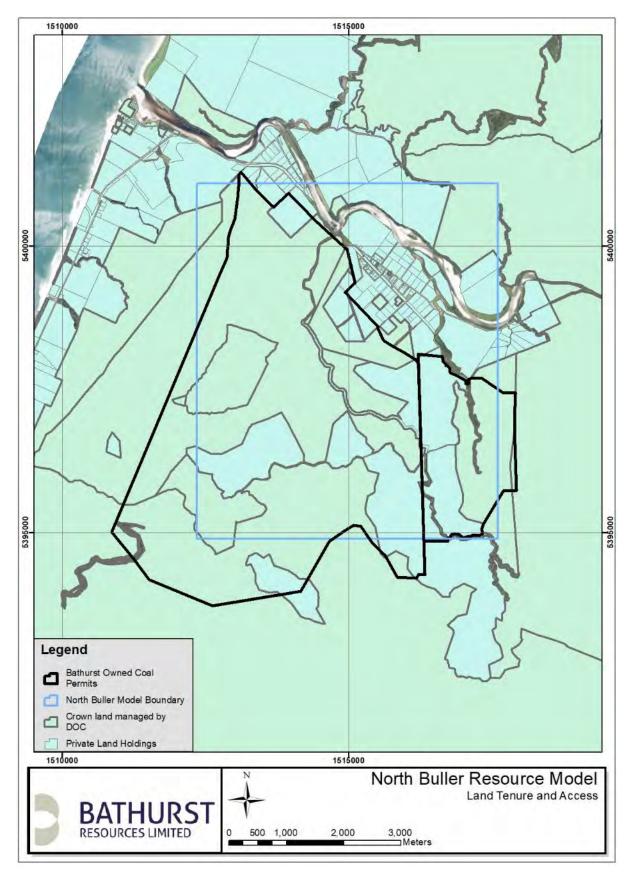


Figure 5: Land ownership in the North Buller project area. BRL has had access arrangements in place with both DOC and Ngai Tahu for exploration activities.

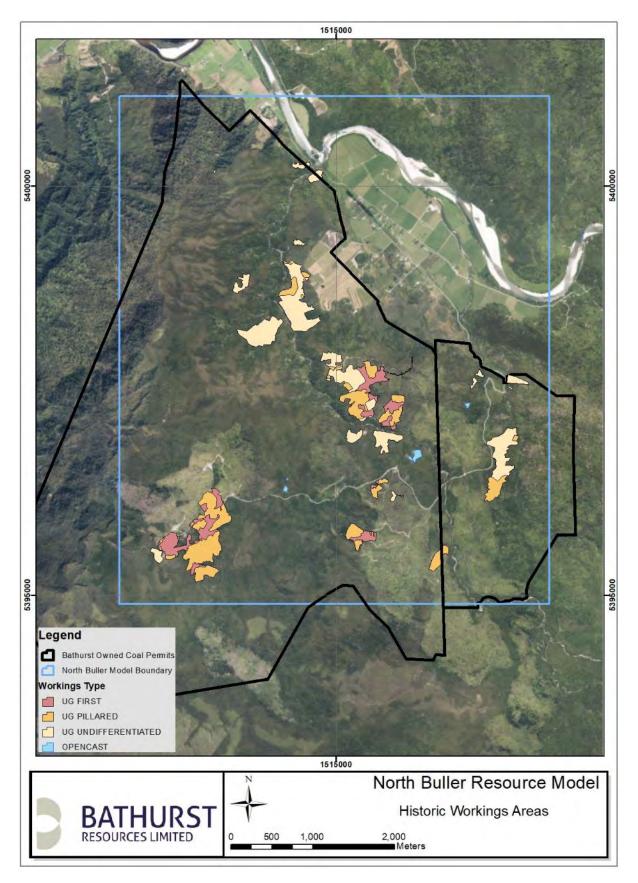


Figure 6: There is a rich history of coal mining in the Seddonville area. This plan shows the extents of historic mining within project area

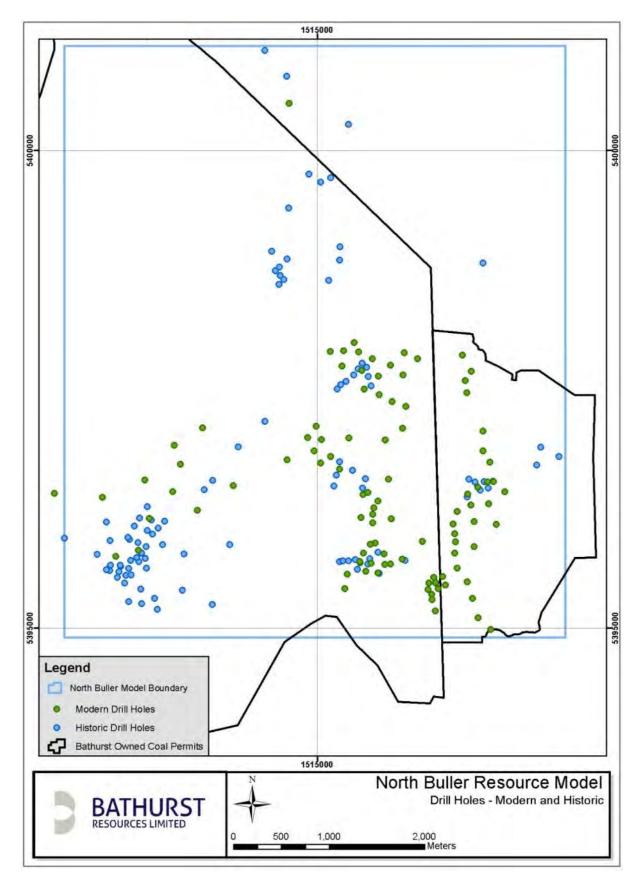


Figure 7: Plan showing the drillholes dataset used to build the North Buller resource model

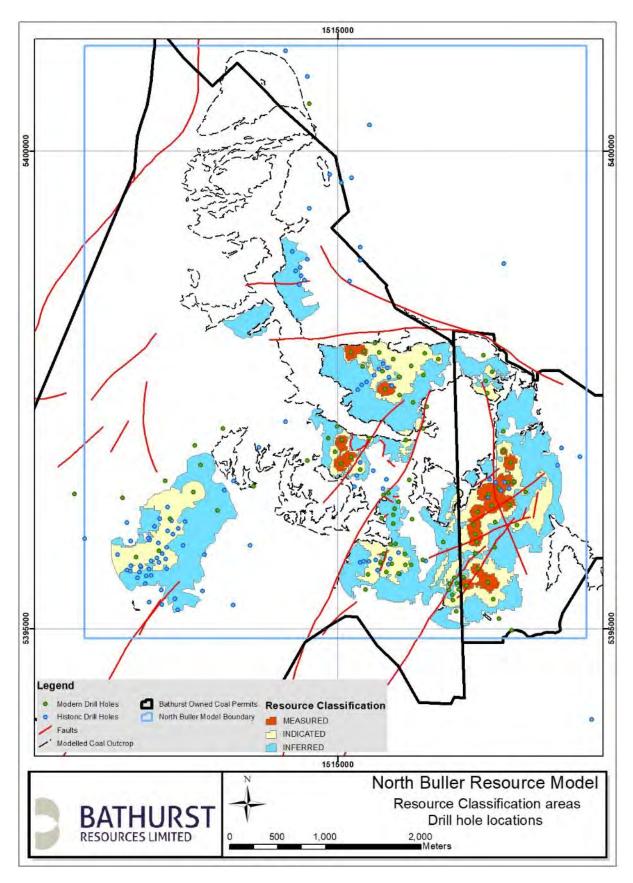


Figure 8: Plan showing the resource classification polygons. Modelled outcrop, faults and drillholes are also shown.

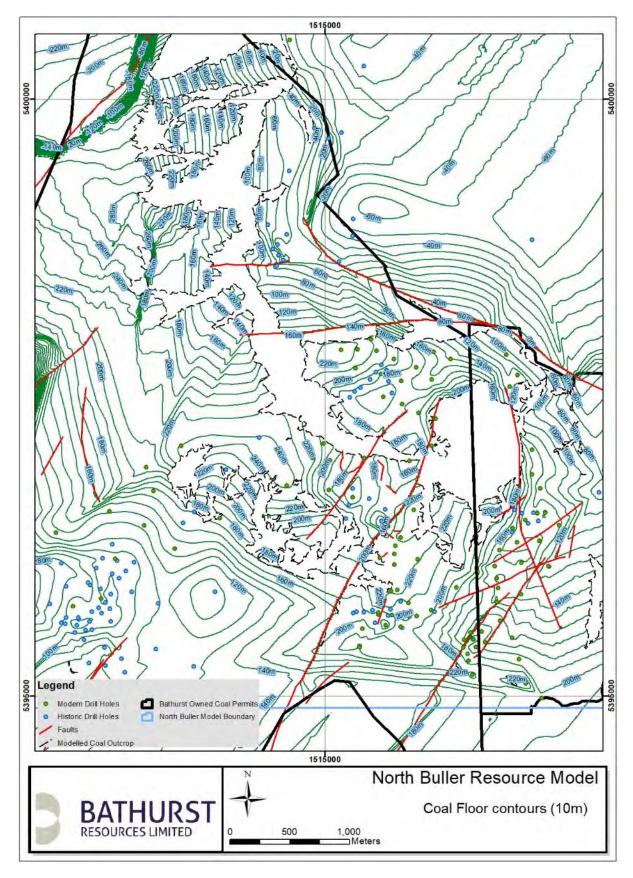


Figure 9: Plan showing the coal floor structure contours. Contours are shown at 10m levels.

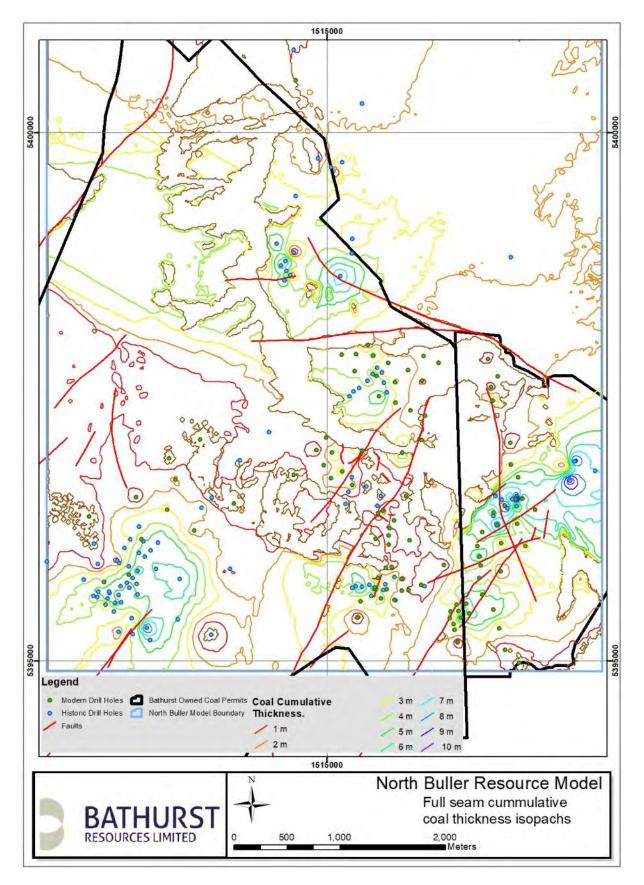


Figure 10: Plan showing the aggregate coal thickness over the project area. Modelled coal outcrop and faults are also shown.

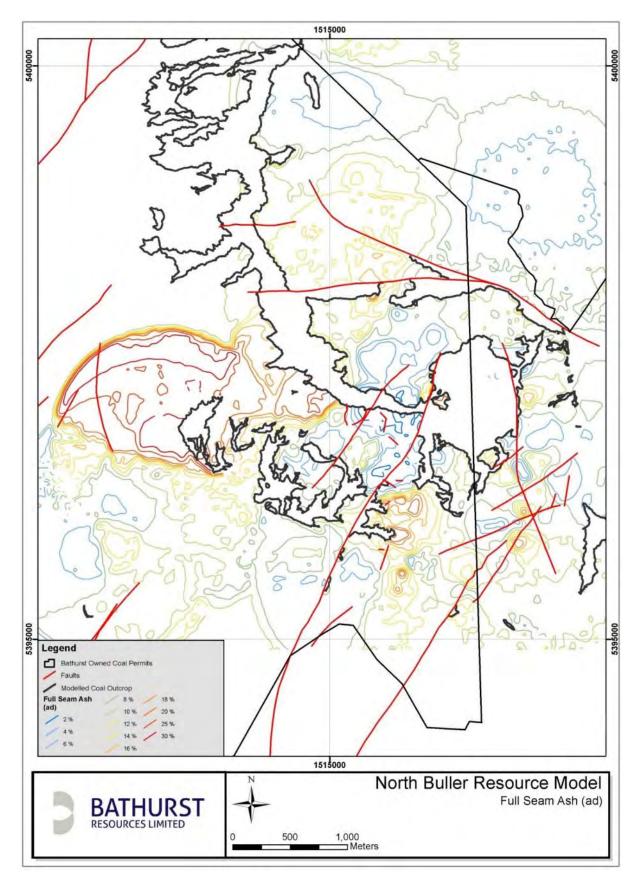


Figure 11: Plan showing the aggregate coal seam ash on an air-dried basis

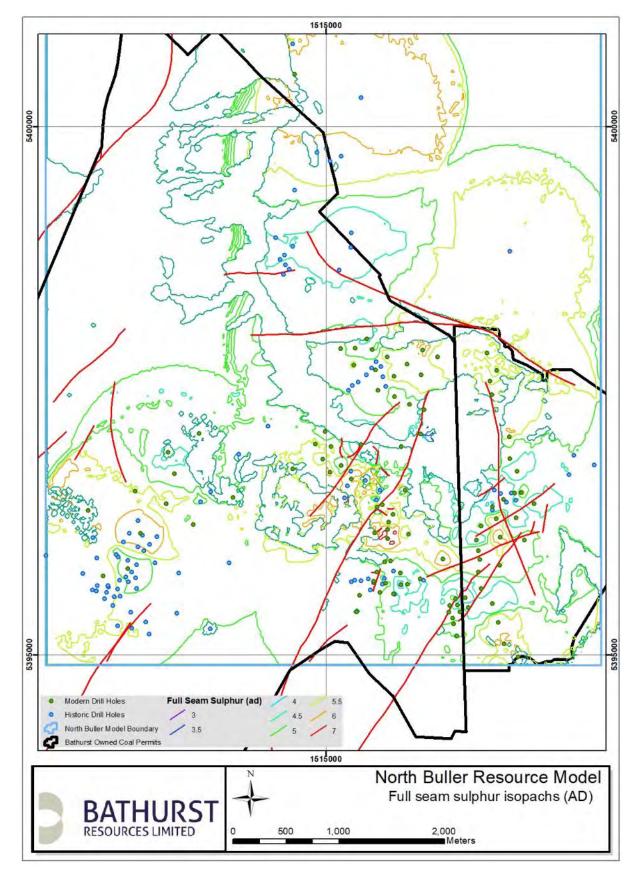


Figure 12: Plan showing the aggregate coal seam sulphur on an air-dried basis

# JORC Code, 2012 Edition - Table 1 Report for the New Brighton Project 2020

Section 1 Sampling Techniques and Data

Criteria	Commentary
Sampling	Multiple campaigns of data acquisition have been carried out in the Ohai coalfield over the past
techniques	century.
-	Drillholes included within the New Brighton exploration dataset include holes drilled outside of
	Exploration Permit (EP) 40625.
	<ul> <li>A combination of open holed (wash drilled), Reverse Circulation, and cored drilling techniques has been used. Some logged and sampled trenching (channel sampling) has also been</li> </ul>
	employed.
	<ul> <li>Bathurst Resources Ltd (BRL) managed exploration campaigns include data from 2013, 2015</li> </ul>
	and 2019. Drilling consists of:
	o 4 Wash drilled drillholes
	o 16 HQ/PQ triple tube (3T) diamond cored holes
	o 8 Trenches
	Previous drilling dataset includes:
	o JY Series (2011) – 8 holes
	o MR Series (2011) – 5 holes
	<ul> <li>NBC Series (2011) – 11 holes</li> <li>TWB drillhole (2009) – 1 hole</li> </ul>
	<ul> <li>TWB drillhole (2009) - 1 hole</li> <li>NBR Series (2007,2008) - 5 holes</li> </ul>
	o ECMBDH Series (2007) — 4 holes
	o OM Series (2005, 2007, 2009, 2011) – 7 holes
	o LMC Series (2005, 2007, 2008) – 19 holes
	o LMR Series (2005) – 15 holes
	o PIT Series (2005) – 19 trenches
	○ TP Series (1995) – 2 holes
	o 300 Series (1984, 1986) – 9 holes
	o 800 Series (1986) – 5 holes
	<ul> <li>Historic Data of Various vintages – 45 holes</li> </ul>
	BRL managed drilling has aimed to infill areas to improve confidence and to test reliability of the
	legacy of the dataset. Two holes drilled were twinned next to an LMC Series hole to obtain coal for marketing purposes.
	5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	<ul> <li>Downhole geophysics are available for 11 of the BRL managed drillholes.</li> <li>Where available, downhole geophysics were used to correlate coal seams, to confirm depths</li> </ul>
	and thickness of coal seams and to validate drillers' logs. Geophysics were also used to
	accurately calculate recovery rates of coal intersections.
	Ply samples were generally taken over intervals no greater than 0.5m and included the full core
	sample.
	Outcrop trench and channel data is entered into the drilling database in a form that replicates a
	drillhole at that location. Coal seam thickness and partings between seams were measured vertically.
	<ul> <li>All analytical data has been assessed and verified before inclusion in the resource model.</li> </ul>
	Unreliable data is omitted.
Drilling	<ul> <li>All BRL managed drilling campaigns have utilised the following drilling methods:</li> </ul>
techniques	<ul> <li>Full PQ Triple tube core.</li> </ul>
	o Full HQ Triple tube core.
	Combination wash drill / Triple tube core.
	Legacy drilling techniques include:  LIG Triple Tube Core
	o HQ Triple Tube Core.
	o Reverse Circulation 133mm.

#### Criteria **Commentary** Wash drilled using tricone/blade/strata bits. Rotary wash, fishtail bit. Excavated trenches with logged intersections make up 10-15% of the primary sample dataset. Drill sample Core recovery was measured by the logging geologist for each driller's run (usually 1.5m) in each recovery drillhole. If recovery of coal intersections dropped below 90% the drillhole required a re-drill. In the 2013 drilling program drillers were paid an incentive if coal recovery was above 90%. Average total core recovery over BRL managed drilling campaigns was 83.5% with core recovery of coal at 90.4% (this increases to 95.5% when NC085 is excluded. NC085 may have intersected the edge of underground workings). Where small intervals of coal were lost, and geophysics indicated strongly that coal was lost, ash values were estimated using the results of overlying and underlying ply samples and the relative response of the down hole density trace. Little recovery data is available for historic drillholes and those of previous operators. Logging BRL has developed a standardised core logging procedure and all core logging completed by BRL has followed this standard. Drill core has been geologically and geotechnically logged by logging geologists under the supervision and guidance of a team of experienced exploration and geotechnical geologists. Drill core was photographed prior to sampling. Depth meter marks and ply intervals are noted on core in each photograph. Down hole geophysical logs were used to aid core logging and adjust depth. The standard of logging varies for legacy drilling campaigns. Sub-sampling For all exploration and resource modeling data acquired by BRL an in-house detailed sampling techniques procedure was used. and sample Ply samples include all coal recovered for the interval of the sample. Core was not cut or preparation halved. The diamond core was lithologically logged and the lithology intervals were used to determine actual coal quality ply sample depth at the drill site or in the core shed. All diamond core samples were collected as soon as practicable after drilling and double bagged then sent to the SGS Minerals Laboratory in Ngakawau where they were crushed and split at the laboratory. Some legacy campaigns did cut/halve coal ply samples. The legacy drilling campaigns vary in the standard of sampling processes, some of which are unknown. Quality of SGS has been the predominant accredited laboratory used by BRL for coal quality testing on assay data exploration drillholes used in the resource model. and laboratory SGS has used the following standards for their assay test work: tests Proximate Analysis is carried out to the ASTM 7582 standard. Ash has also used the standard ISO 1171. 0 Volatile matter has also used the standard ISO 562. Inherent moisture has also used the ISO 5068. Total sulphur analysis is carried out to the ASTM 4239 standard. $\circ$ Calorific value results are obtained using the ISO 1928 standard. Loss on drying data is completed using the ISO 13909-4 standard. Relative Density is calculated using the standard AS 1038.21.1.1. CRL Energy Ltd completed much of the assay test work for samples collected prior to BRL taking over the projects. CRL used the following standards for their test work: Inherent Moisture tests utilised the ISO 117221 standard. Ash tests utilised the ISO 1171 standard. Volatile matter tests utilised the ISO 562 standard. 0 Calorific value tests utilised the ISO 1928 standard. 0 Both SGS and CRL are accredited laboratories.

All analysis was carried out and reported on an air-dried basis unless stated otherwise.

#### Criteria **Commentary** Verification of Sample assay results have been cross referenced and compared against lithology logs and sampling and downhole geophysics data. Results are also inspected by experienced geologists and compared assaying with expected values utilising known coal quality relationships for the Nightcaps/Ohai coalfield. Anomalous assay results are investigated, and where necessary the laboratory is contacted and a reanalysis undertaken from sample residue. Laboratory data is imported directly into an Acquire database with no manual data entry at either the laboratory or at BRL. Geophysical data has been used to establish coal seam thickness and depths on the margins of coal seams in RC drillholes where sampling uncertainty inherent in RC drilling made coal sample and intersection depths less reliable. Location of New Zealand Trans Mercator 2000 Projection (NZTM) is used by BRL for the New Brighton data points project area. NZTM is considered a standard coordinate system for general mapping within New Zealand. Historic data has been converted from various local circuits and map grids using NZ standard cadastral conversions. LiDAR and digital imagery was acquired in April 2013 using an Optech M200 LiDAR system and CS8900 medium format digital camera. The data was collected flying 1,300m above the lowest ground and using a scanner field of view of 44°. Outgoing pulse rate was set at 70kHZ and minor scan frequency 33.5Hz. The topographic surface used to build the model is derived from a combination of LiDAR data, and LINZ topographical data where LiDAR coverage in outer areas is unavailable. Historic data has been converted from various local circuits and map grids to NZTM. Surveyed elevations of drillhole collars are validated against the LiDAR topography. Data spacing Data spacing for the New Brighton project has been calculated by finding the radius required to and fill the total area of the EP40625 permit divided by number of drillholes within that area. The distribution central area of the permit has a lower average DH spacing. The project has an average primary sample spacing of 240m however New Brighton central has an average primary sample spacing of 112m. Drillhole spacing is not the only measurement used by BRL to establish the degree of resource uncertainty and therefore the resource classification. BRL uses a multivariate approach to resource classification which is explained further in Section 3: Classification. The current drillhole spacing is sufficient for coal seam correlation purposes in the majority of the areas. Difficulties lie in seam correlation due to the abundant seams and often complex structural mechanisms such as faults and unconformities. Many drillholes have not been drilled deep enough to intersect all seams in the stratigraphic sequence or have not completed diagnostic tests confirming Ohai group or Nightcaps group coal measures. Only 75% of drillholes have had downhole geophysics completed which is important for coal seam correlations. The samples database is composited to 0.4m sample length prior to grade estimation. This is the mean sample length from BRL managed drilling. Compositing starts at the top of seam and small samples are not distributed or merged. Orientation of All recent exploration drilling has been completed at a vertical orientation. data in All previous drillholes are vertical except one; those without deviation plots are assumed to be relation to vertical. OM07b was drilled as a coal seam gas hole (250m west of EP40625) and was deviated geological towards horizontal to drill through a thick seam to intersect OM05. OM07b is not used in the structure modelling process. Any deviation from the vertical is not expected to have a material effect on shallow, open pit resources. Average drillhole depth in the dataset is 96m however 18 holes have a depth >200m. The majority of the deposit presents a moderate seam dip between 10° - 20° although some localized steep dips do exist near fault traces. Vertical drilling is considered to be the most suitable drilling method of assessing the coal resource at the New Brighton project.

Stringent sample preparation and handling procedures have been followed by BRL. Ply samples

are taken and recorded from drill core, sealed in plastic and sent directly to the laboratory.

Sample

security

Criteria	Commentary
	<ul> <li>It is not considered likely that individual coal samples face a risk of theft or sabotage as coal is a bulk commodity with little value for small volumes of coal from drill core.</li> </ul>
Audits or reviews	<ul> <li>BRL has reviewed the geological data available and considers the data used to produce the resource model is reliable and suitable for the purposes of generating a reliable resource estimate.</li> <li>Senior geologists undertake audits of the sample collection and analysis processes.</li> </ul>

## Section 2 Reporting of Exploration Results

	Reporting of Exploration Results
Criteria	Commentary
Mineral tenement and land tenure status	<ul> <li>The New Brighton Resource Model includes two exploration permits owned by BRL and privately held land coal rights attached to land titles in and around the Ohai Township and to the west and east of EP 40625. An area of open ground exists to the east of EP 40625 and is included in the model area. Coal resources have only been reported within EP40625.</li> <li>Exploration Permit Application (EPA) 60642 was lodged to cover the area of EP 51260 when it expired in early 2020. The EPA covers an area of 690.51 hectares and contains a portion of the resource area. It is reasonably expected that this permit application will be granted.</li> <li>Exploration Permit 40625 covers an area of 658.37 Hectares. This Permit has expired and a subsequent mining permit application was lodged with NZ Petroleum and Minerals (NZPAM). It is considered that there are reasonable prospects to convert all or part of the EP to a mining permit.</li> </ul>
	Permit/Rights Operation Mining Type Expiry
	Exploration PermitOhaiN/AN/AApplication 60642OhaiOpencast,02/09/2017
	40625
	Mining Permit Ohai Opencast, N/A Application 60400
	It is considered that there are reasonable prospects to negotiate access arrangements for mining
	with landowners covering the reported resource areas.
Exploration	• The majority of the New Brighton exploration drilling was carried out by the L&M Group of
done by other	companies between 2005 and 2011.
parties	<ul> <li>Historic data has been traced back to original reports and logs held at Archives NZ storage centres. Historical data has been thoroughly investigated for reliability and quality and where the integrity of the data is limited it has been omitted from the model. Historic data includes old underground workings plans, geological reports and drilling logs.</li> </ul>
Geology	<ul> <li>The project is located in the Ohai coalfield, New Zealand.</li> <li>The Ohai coalfield is a fault bounded basin containing Cretaceous sub-bituminous coal.</li> <li>The defined resource is contained within the New Brighton, Morley and Beaumont Formations.</li> <li>The Cretaceous Ohai Group contains three formations – the Wairio, New Brighton and the Morley Formations.</li> <li>The Eocene Nightcaps group contains two formations – the Beaumont and Orauea Formations.</li> <li>The two groups are separated by an unconformity clearly distinguishable by micro-flora.</li> <li>Most production has come from seams in the Morley Formation which tend to have higher quality coal. Coal seams are faulted and folded into complex structures. Coal thickness and extent varies as seams are often lenticular and split or washed out by fluvial sand channels and syndepositional faulting and folding are indicated.</li> <li>Morley coal measures of the Ohai Group have a combined vertical seam thickness which averages 4.1m however 50m thick seams have been recorded in OM05 250m west of the permit.</li> <li>Coal ranks range from sub-bituminous A to high volatile bituminous C.</li> <li>Eocene Beaumont coal measures of the Nightcaps Group have a combined vertical seam thickness which averages 1.4m; however 7m thick seams have been recorded within the Coaldale pit. Coal ranks from sub bituminous C-B rank.</li> <li>The Nightcaps Group Beaumont Formation coal measures are conformably overlain by Eocene</li> </ul>

#### Criteria

#### Commentary

Orauea Formation mudstone.

#### Drillhole Information

#### Table 1 Showing summary of drilling data available within the model area

Years	Agency	Range of Collar ID	# Holes	Drilling Method	# Holes in struct ure mode I	# holes in qual ity mod el	Geophysics Availab le
1923 - 1955	Various	Various	45	unknown	24	2	0
1984	State Coal Mines	351 - 355	3	Cored	3	1	3
1986	Lime & Marble Ltd	371 - 379	6	Cored	6	5	6
1986	Mines Department	882 - 886	5	Cored, washdrilled	5	5	5
1995	Southgas Resources Ltd	TP05-06	2	Wash drilled	2	0	2
2005	Kenham Holdings Ltd (L&M)	PIT01 - PIT18, PIT_4m	19	Trench	8	3	0
2005	L&M	LMR05 - LMR19	15	RC hammer	14	8	9
2005	L&M	LMC01 - LMC03	3	HQ triple tube	3	3	0
2005	L&M	OM1	1	Cored, washdrilled	1	1	0
2007	Eastern Corporation	ECMBDH01 - ECMBDH05	4	Trench	4	0	4
2007	L&M	LMC04 - LMC11	8	Triple tube core, OH, RC hammer	8	7	8
2007 - 2011	L&M	OM2 - OM7, OM7a, OM7b	6	Wash drilled	3	0	3
2007 - 2008	L&M	NBR01 - NBR06	5	triple tube	5	1	0
2008	L&M	LMC13 - LMC21	8	triple tube core	8	4	6
2009	L&M (Nightcaps Contracting)	TWB-01	1	Wash drilled	1	0	1
2011	L&M	NBC11-1 to NBC11-23	11	HQ triple tube	9	4	6
2011	L&M	MR1 - MR5	5	triple tube core	5	1	5
2011	L&M	JY2 - JY9	8	triple tube core	8	6	6
2013	Bathurst Resources Ltd	NC079 - NC085	7	triple tube core	5	5	3
2015	Bathurst Resources Ltd	NBT001 - NBT008	8	Trench	2	2	0
2015	Bathurst Resources Ltd	NC119 - NC129	11	triple tube core, Open holed	7	6	8
2019	Bathurst Resources Ltd	NC220- NC221	2	triple tube core, Open holed	2	2	0

- Exploration drilling results for individual holes have not been reported.
- As coal is a bulk commodity the exclusion of detailed exploration data from this report is considered to not be material to the understanding of the report.

#### Data aggregation methods

- The nominal cut-off for ash (ad) for constructing the New Brighton resource model is set at 35%.
- The resource model is built as a block model with 0.5m block thicknesses for coal. Coal ply data is used to grade estimate the block model.

#### Relationship between mineralisation widths and intercept lengths

All exploration drillholes have drilled vertically and the coal seam is generally gently dipping, therefore the seam intercept thickness is representative of the true seam thickness.

#### Diagrams

· Coal quality isopach plots and coal structure contour plots for New Brighton, Morley and

Criteria	Commentary
	Beaumont coal are shown in the Appendix.
Balanced reporting	<ul> <li>As coal is a bulk commodity detailed exploration drilling results and coal intersections have not been reported.</li> </ul>
Other substantive exploration data	<ul> <li>Exploration drilling results have not been reported in detail.</li> <li>Some coal composite samples for full seam, minable sections have been taken for thorough analysis including ash constituents, forms of sulphur, ash fusion temperatures, and ultimate analysis. These composite samples are not used in grade estimation.</li> <li>A bulk sample of ~5000 tonnes was taken in 2013 from the New Brighton Central prospect. Coal quality results from this sample on an as received basis were 4.7% ash and CV of 21.6 MJ/kg.</li> </ul>
Further work	Project evaluation is currently being undertaken.

## Section 3 Estimation and Reporting of Mineral Resources

	_stillation and Reporting of Milleral Resources
Criteria	Commentary
Database integrity	<ul> <li>All historic and legacy datasets have been thoroughly checked and validated against original logs and results tables.</li> <li>BRL utilises an Acquire database to store and maintain its geological exploration dataset.</li> <li>An Acquire database places explicit controls on certain data fields as they are entered or imported into the database such as overlapping intervals, coincident samples, illegal sample values and standardised look-up tables for logging codes etc.</li> <li>Manual data entry of assay results is not required as results are imported directly.</li> <li>The database is automatically backed up on an offsite server.</li> </ul>
Site visits	<ul> <li>Hamish McLauchlan (the Competent Person) has worked for the past 20 years on coal projects throughout New Zealand. The Competent Person visits the site regularly.</li> </ul>
Geological interpretation	<ul> <li>BRL has confidence in the geological model and the interpretation of the available data. Confidence varies for different areas and this is reflected by the resource classification.</li> <li>Dry mineral matter and sulphur free volatile matter is the principal quality used to differentiate and correlate Beaumont and Morley coal seams where palynology samples are unavailable.</li> <li>BRL considers the amount of geological data sufficient to estimate the resource, however an increased data density may increase confidence of some areas.</li> <li>Uncertainty surrounds the historic mine workings, both in the quality and quantity of coal extracted and the surveying of underground workings. This is reflected in the resource classification.</li> <li>Some residual uncertainty of quality and confidence of legacy drilling data remains despite thorough evaluation of the logs and drill locations.</li> </ul>
Dimensions	<ul> <li>A number of coal seams are present in the stratigraphic sequence. Up to three coal seams exist in each of the Beaumont, Morley and New Brighton Formations, with one existing in the Wairio Coal Measures. The total combined coal thickness varies from less than 1m thick up to 50m thickness locally (gas drillhole OM05).</li> <li>The model covers an area 4.8km by 4.85km.</li> <li>A single primary prospect area exists within EP 40625. The New Brighton Central area covering an approximate area of 1.5km by 0.5km.</li> <li>The deepest coal reported as resources lies 130m below the surface. All resources are contained within an RF 1.0 optimised pit shell using current mining at Takitimu based on appropriate economics for the New Zealand domestic market.</li> </ul>
Estimation and modeling techniques	<ul> <li>All available and reliable exploration data has been used to create a geological block model which has been used for resource estimation and classification.</li> <li>All exploration drilling data is stored in Acquire and exported into a Vulcan drillhole database. Mapping data is stored in Acquire and is exported into Vulcan.</li> <li>Interpretive design data is stored within Vulcan in various layers.</li> <li>Due to the model having two unconformable coal bearing formations the model is subdivided into two separate domains for formation (Ohai Group and Nightcaps Group). The Ohai Group seams are truncated by the unconformable Beaumont coal measures.</li> </ul>

#### Criteria

#### Commentary

- Each domain is modelled for structure and grade separately.
- Vulcan is used to build the structure model. Grid spacing is 10m x 10m for New Brighton Central prospect and 25m x 25m for the remainder of the project area.
- Maptek's Integrated Stratigraphic Modeler module is used to produce the structure model. The stacking method is used which triangulates a reference surface and then stacks the remaining horizons by adding structure thickness.
- Structure grids are checked and validated before being used to construct the resource block model.
- Vulcan is used to build the block model and to grade estimates. The process is automated using a Lava script.
- The stratigraphic structure grids for each domain, along with LiDAR topography surface, and Beaumont unconformity surface were used to build the block model. The block dimensions were constructed at 10m x 10m for the New Brighton Central prospect and 25m x 25m for the remainder of the project area. Vertical thickness for the coal blocks is 0.5m for both models.
- Grade estimation is performed utilising Vulcan's Tetra Projection Model at the first daughter level.
   Coal qualities are estimated on an air-dried basis except bed moisture. Ash, sulphur, inherent and total moisture, volatile matter, and calorific value are estimated simultaneously.
- Grade estimation is computed using an inverse distance function with power of 2.5.
- Various methods have been used to check the validity of the block estimation. This includes manual inspection of the model, QQ plots of the model qualities vs coal quality database and other comparison tools.
- Resource tonnages within the model have been discounted where the resource falls within
  historic underground workings areas. The primary mining method utilised historically in the New
  Brighton and Mossbank areas is bord and pillar mining and opencast mining. Historic extraction
  rates are estimated using old mining extraction reports, and tonnage reports. The extraction rates
  used to discount coal tonnages in the resource model are as follows:

Mining Method	Extraction Rate
Underground	50% of all seams
workings	
Opencast	100% of all seams

- Behre Dolbear Australia Pty Limited (BDA) notes that Bathurst has adopted a procedure over old workings of discounting the estimated resources to account for the depletion of coal from underground mining and to account for possible structures not identified by drilling. Based on reconciliations from mining to date at Takitimu, this approach has been established as a reasonably reliable, if somewhat conservative, method of estimating resources where there are clearly areas of depletion. BDA accepts that this appears to be a reasonable approach but cautions there will be areas where the resources may differ from the estimates.
- No acid mine drainage is thought to occur within the Ohai Coalfield due the nonacid forming lacustrine depositional environment of the coal measures and acid generation test work has not been completed at New Brighton as it is assumed the coal measures at New Brighton exhibit the same nonacid forming behavior.

#### Moisture

- Moisture, both on an air-dried and total moisture basis, is estimated in the resource model from
  the sample database after using a cut-off envelope to cut samples that vary excessively from the
  norm. Natural variability in bed moisture is amplified by excessive variability in the sampling
  process, and laboratory testing methods between labs and over time.
- Where ply sample results do not include moisture, moisture is calculated using a derived relationship of moisture vs ash.
- Resource tonnages are reported using natural bed moisture, calculated using the Preston Sanders equation.

## Cut-off parameters

- Structure grids have been developed based on a 35% ash cut-off. Some higher ash intervals are retained within the coal quality dataset to allow simplification of the seam model.
- No lower ash cut-off has been applied.

#### Criteria **Commentary** Coal resources are reported down to a seam thickness of 0.5m (one block) with an ash cut-off Resources have been defined as economic by using a breakeven Lerchs-Grossman optimised opencast pit shell which is run over all the coal within the resource model. No resources have been reported outside of this pit shell. Mining factors No mining factors such as mining losses and dilutions have been applied when developing the resource model however current economic and mining parameters for domestic coal sales were assumptions used to define the RF1 optimised pit shell which was used to define coal that has reasonable prospects for eventual economic extraction. Metallurgical No metallurgical assumptions have been applied in estimating the resource. It is not expected factors or that a wash plant would be required for coal processing. assumptions Environmental No environmental assumptions have been applied in developing the resource model. factors or It is assumed that overburden is not acid forming as is the case at other mines in the Ohai assumptions coalfield. **Bulk density** A total of 66 relative density (air-dried) sample results are available for the New Brighton project The samples are distributed throughout the Takitimu-Coaldale-Black Diamond project area and the sample set covers a range of ash values from 1.7% to 56.2%. From this dataset an ash-density curve was generated with a coefficient of determination of R<sup>2</sup>=0.98 for New Brighton coal, R<sup>2</sup>=0.92 for Morley coal, and R<sup>2</sup>=0.84 for Beaumont coal. Air-dried density is calculated using the air-dried block ash value and the derived density equations. New Brighton coal: Density (ad) = (0.0091 \* ash) + 1.3181Morley coal: Density (ad) = (0.0097 \* ash) + 1.2944Density (ad) = (0.0105 \* ash) + 1.25Beaumont coal: An in situ bulk density value is computed using the Preston Saunders method; Density (ps) = (RD \* (100 - mo ad)) / (100 + RD\*(mo ar - mo ad) - mo ar)Where RD is relative density on an air-dried basis, mo\_ad is inherent moisture, and mo\_ar is total moisture.

#### Classification

- BRL classifies resources using a multivariate approach.
- Coal resources have been classified on the basis of geological and grade continuity balanced by relative uncertainties surrounding historic underground extraction and proximity to faults and unconformities.
- Closely spaced drillholes with valid coal quality samples (point of observation) increases the confidence in resource assessments.
- The confidence is reduced by:
  - A block being within an area of historic underground workings due to extraction rate uncertainty.
  - A block being within 20m of historic underground workings due to uncertainty with historic survey of the workings and georeferencing of mine plans.
  - A block is in an area where structure dip is greater than 20° due to proximity to large faults. Faulting can impact coal thickness and quality and some faults are poorly constrained.
  - A block lying within an area with thin seams resulting in uncertainty of geological continuity. Where a seam is thin or is splitting, a small change in thickness can have a large impact to reported coal tonnages and qualities.
  - A block being within an area close to a possible 'washout' or erosion of Morley coal as indicated by historic underground mine plans and extents.
  - A block underlies the modelled regional unconformity between Beaumont and Morley formations by less than 2m due to uncertainties in unconformity surface topology.

Essentially, in an area that is not affected by the above conditions, a distance to nearest sample of less than 75m would be classified as Measured, less than 120m is classified as Indicated and less than 300m would be classified as Inferred.

Criteria	Commentary			
Audits or reviews	An internal review of the resource model has been carried out by BRL.			
Discussion of relative accuracy/ confidence	<ul> <li>The Competent Person has reviewed the resource estimates and has visited the New Brighton project area. The Competent Person has examined the methodology used to estimate the resources and reserves and is satisfied that the processes have been properly conducted. The estimation methodology is generally in accordance with, if not at a higher standard to, industry practice and the estimates can be regarded as compliant under the JORC 2012 code.</li> <li>Statistical comparisons between the resource block model and the coal quality data set have been carried out and are within expected ranges. Techniques utilised include QQ plots and probability plots.</li> </ul>			

### Appendix A:



Figure 1: Location of New Brighton project

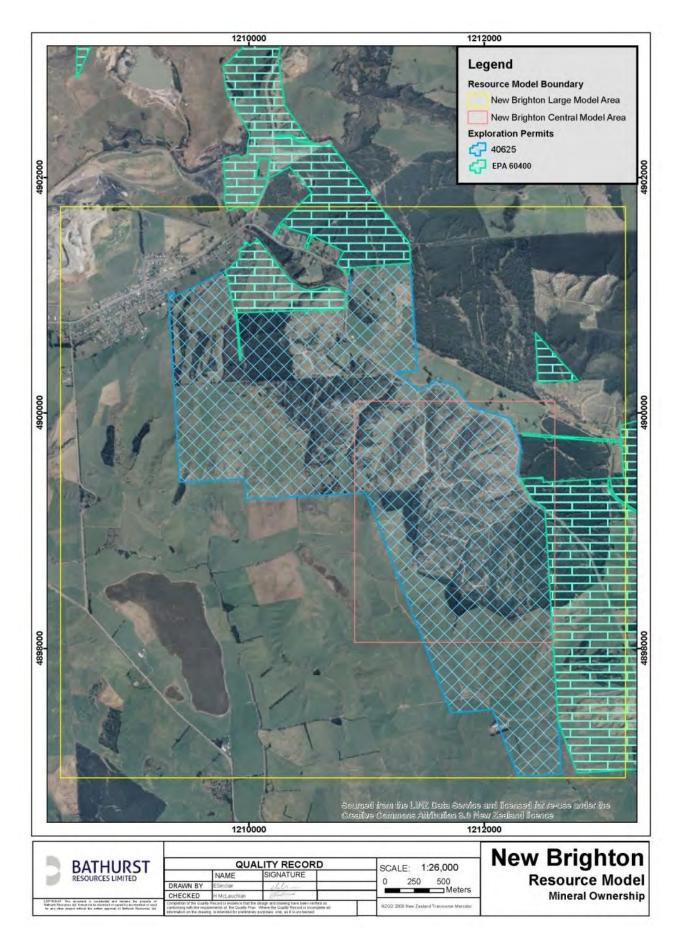


Figure 2: Shows BRL owned Coal Exploration Permits within the New Brighton model area

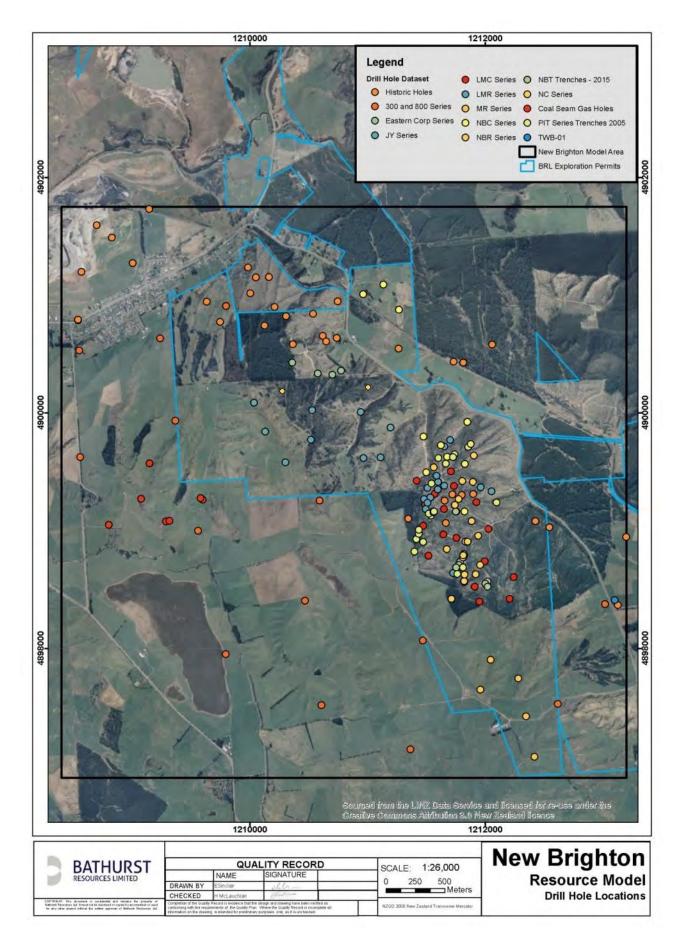


Figure 3: Location of drilling within Resource Area

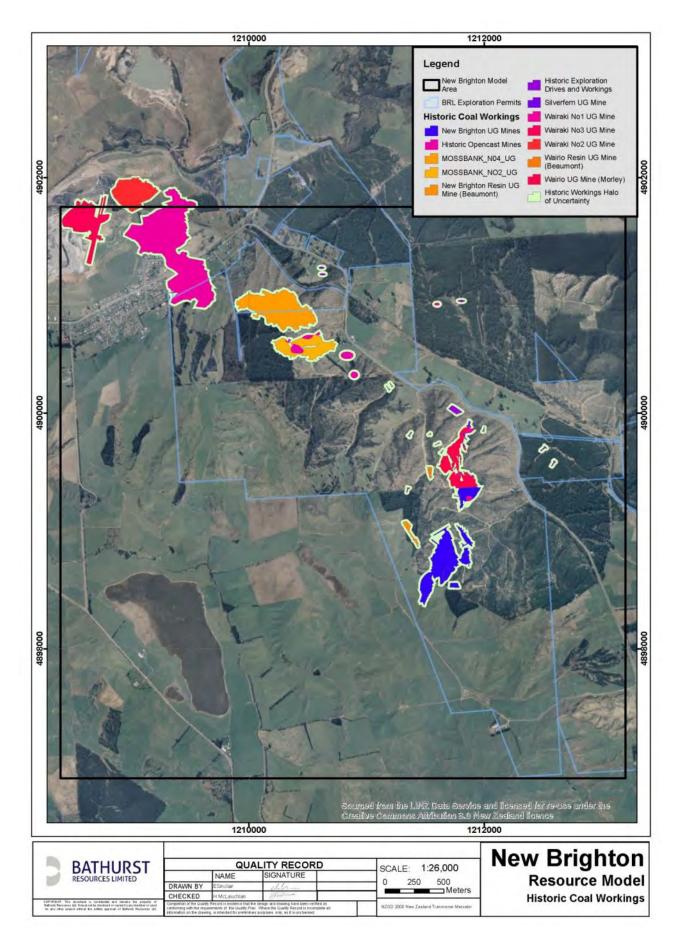


Figure 4: Location of Historic Mine Workings. Note: recent Opencast Mined Areas are not shown

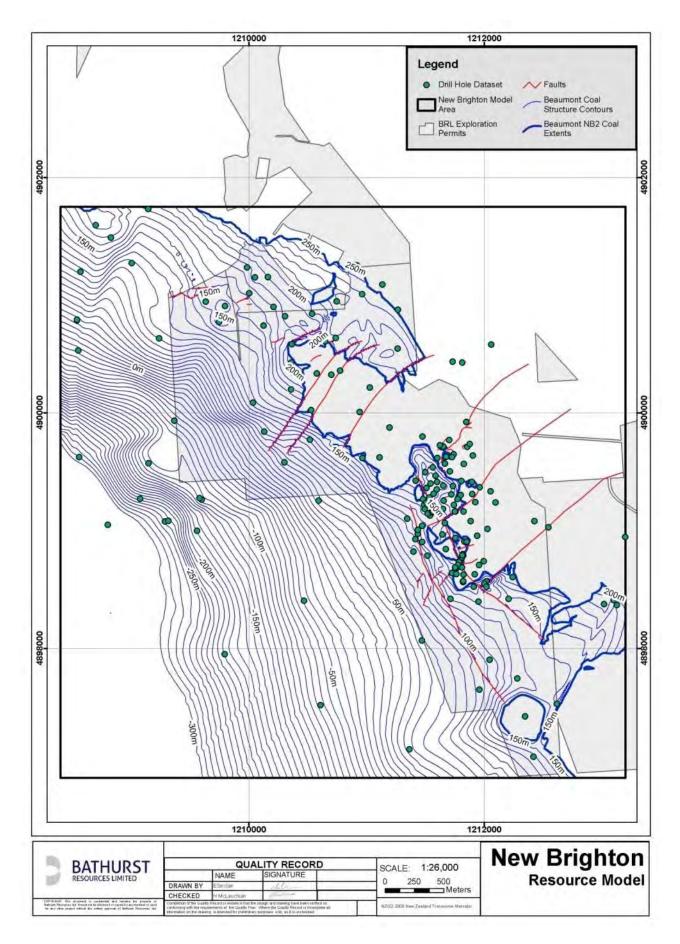


Figure 5: Beaumont formation coal floor contours

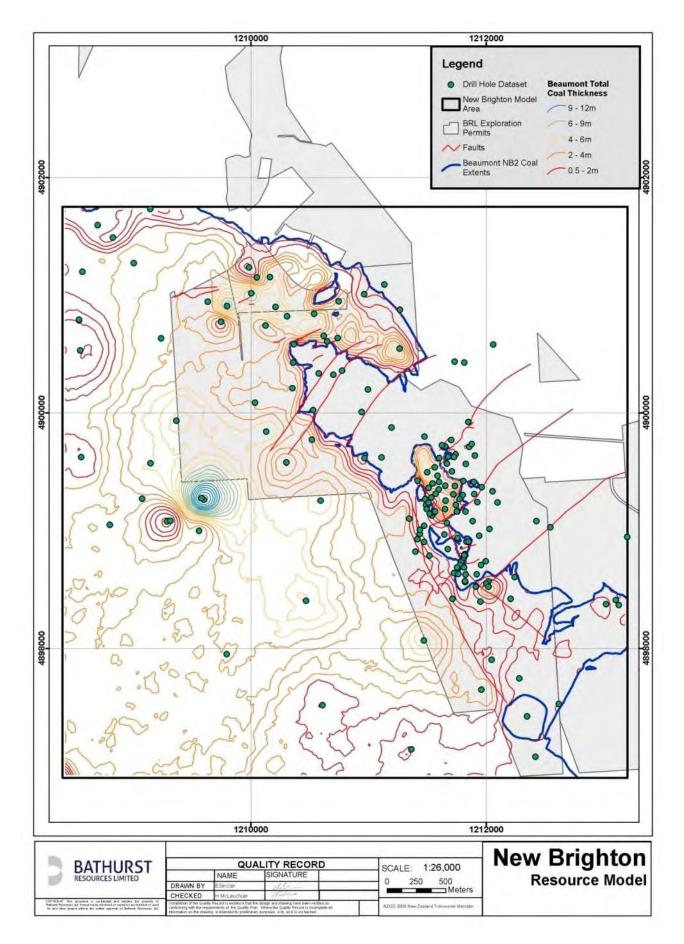


Figure 6: Beaumont formation full seam cumulative thickness isopachs

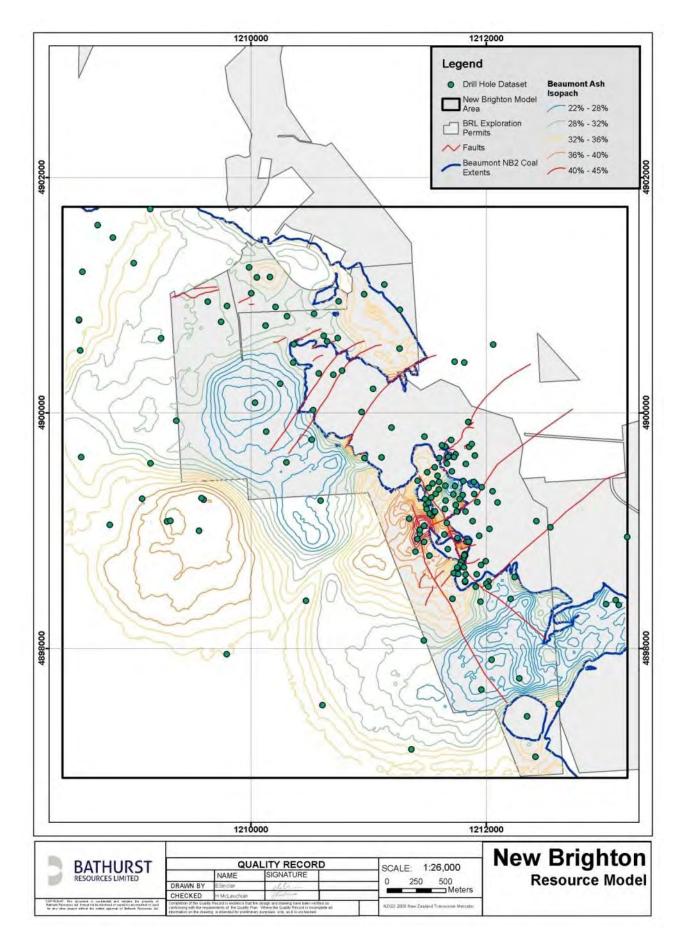


Figure 7: Beaumont formation full seam ash isopachs

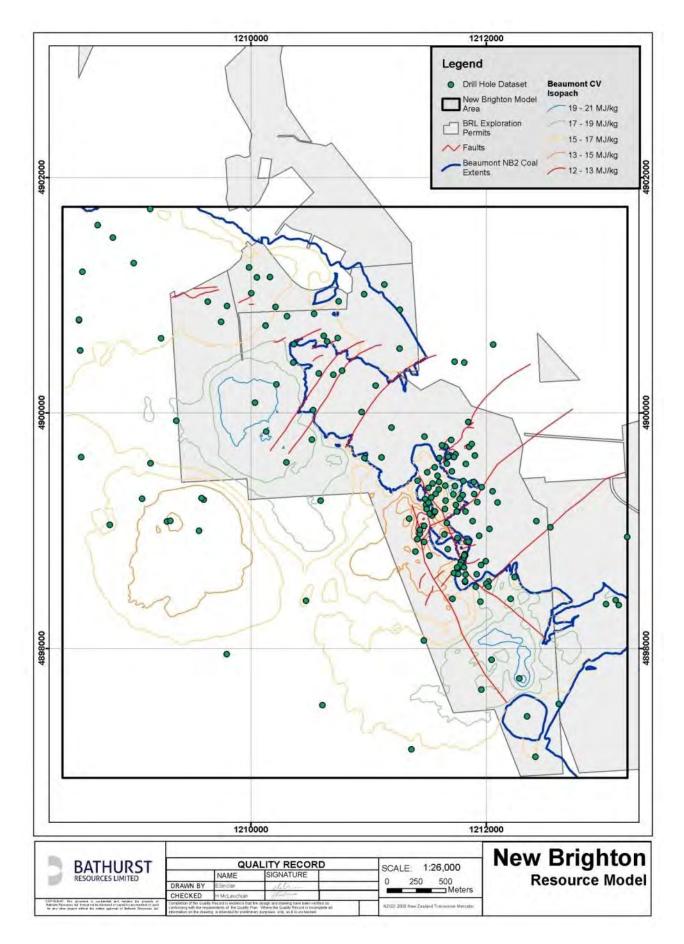


Figure 8: Beaumont formation full seam calorific value isopachs

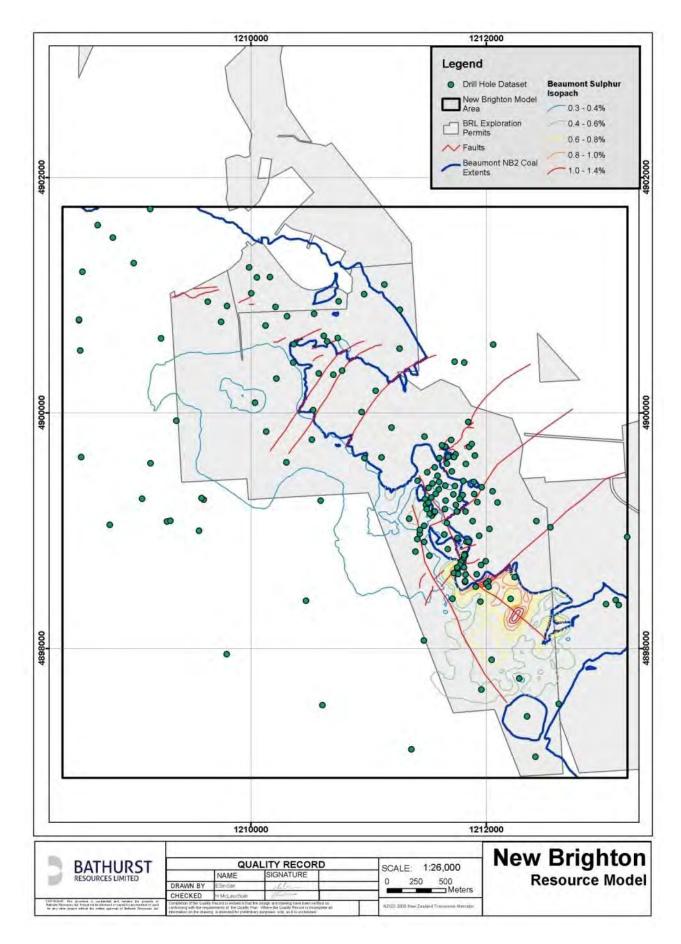


Figure 9: Beaumont formation full seam sulphur isopachs

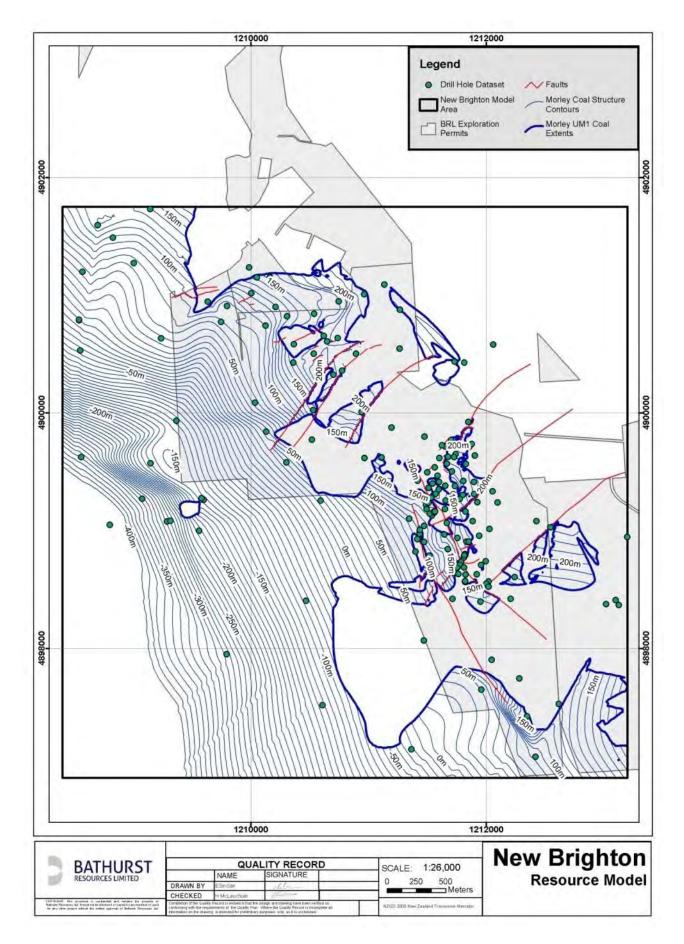


Figure 10: Morley UM1 seam coal floor contours

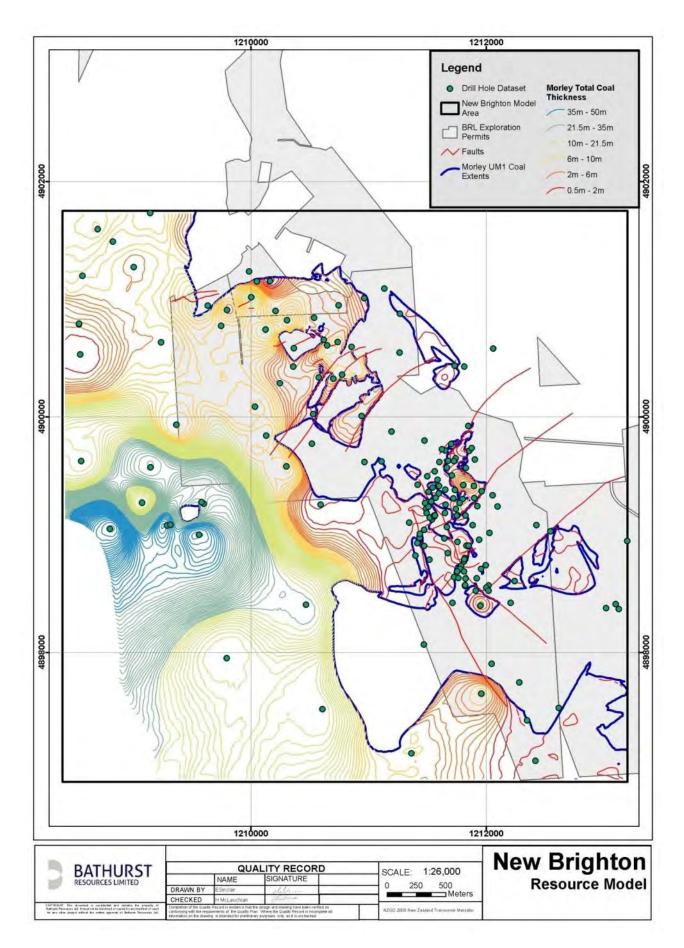


Figure 11: Morley formation full seam cumulative coal thickness isopachs

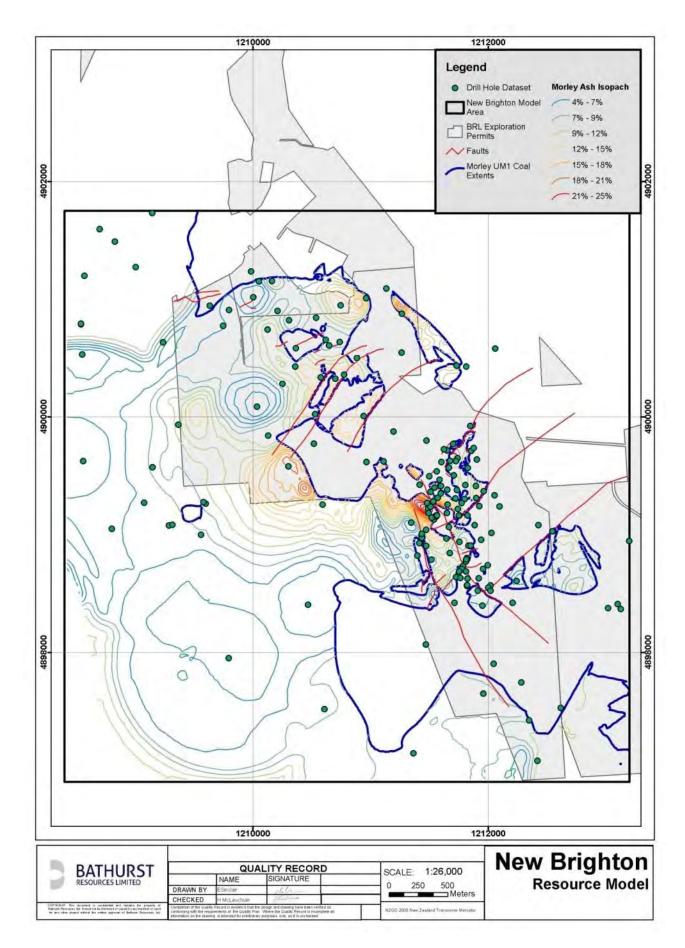


Figure 12: Morley formation full seam ash isopachs

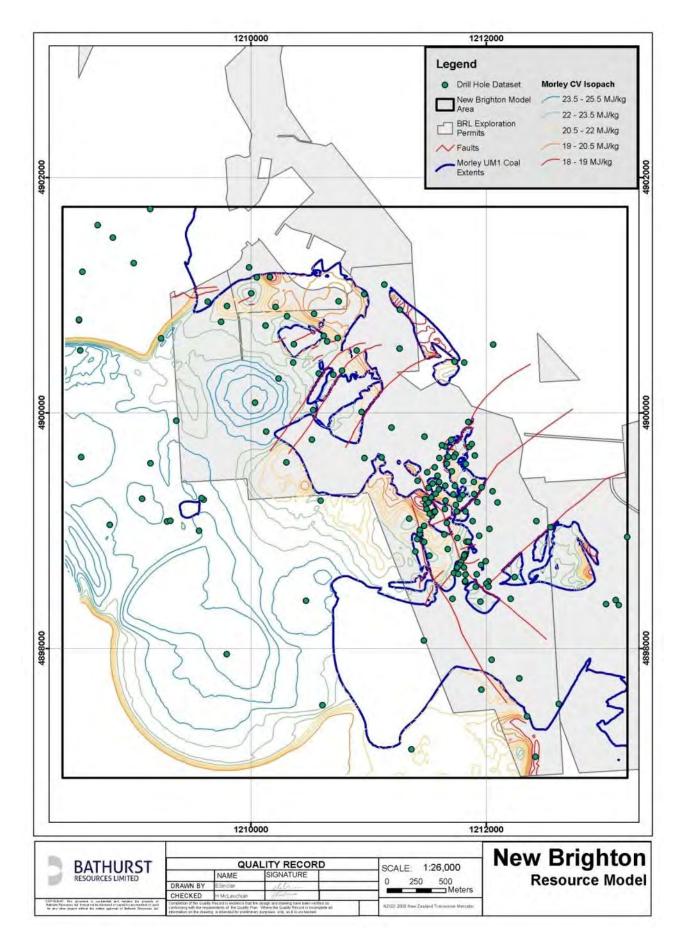


Figure 13: Morley formation full seam calorific value isopachs

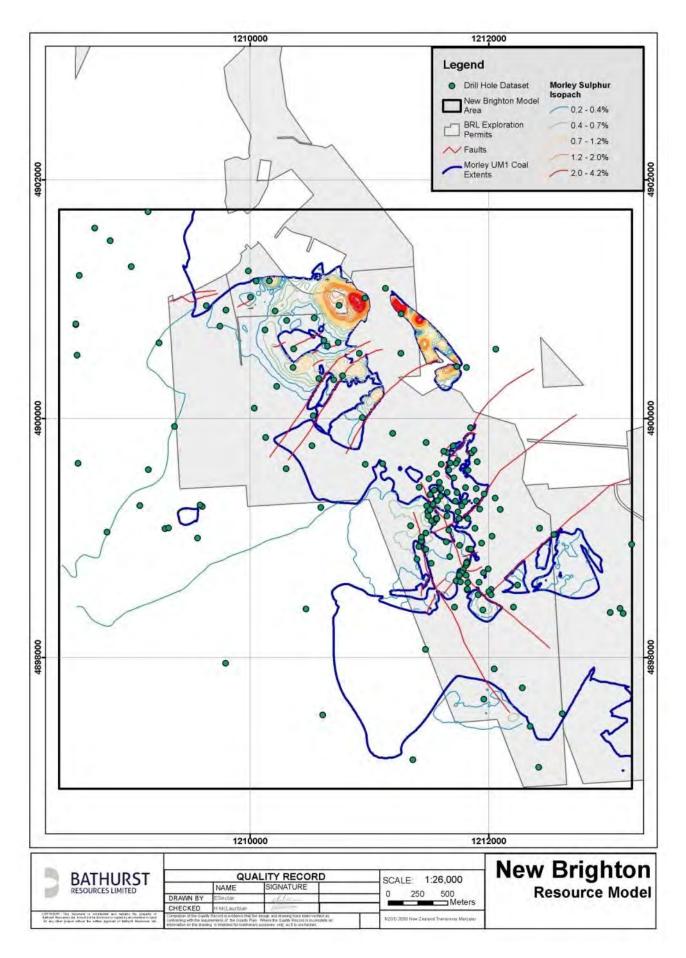


Figure 14: Morley formation full seam sulphur isopachs

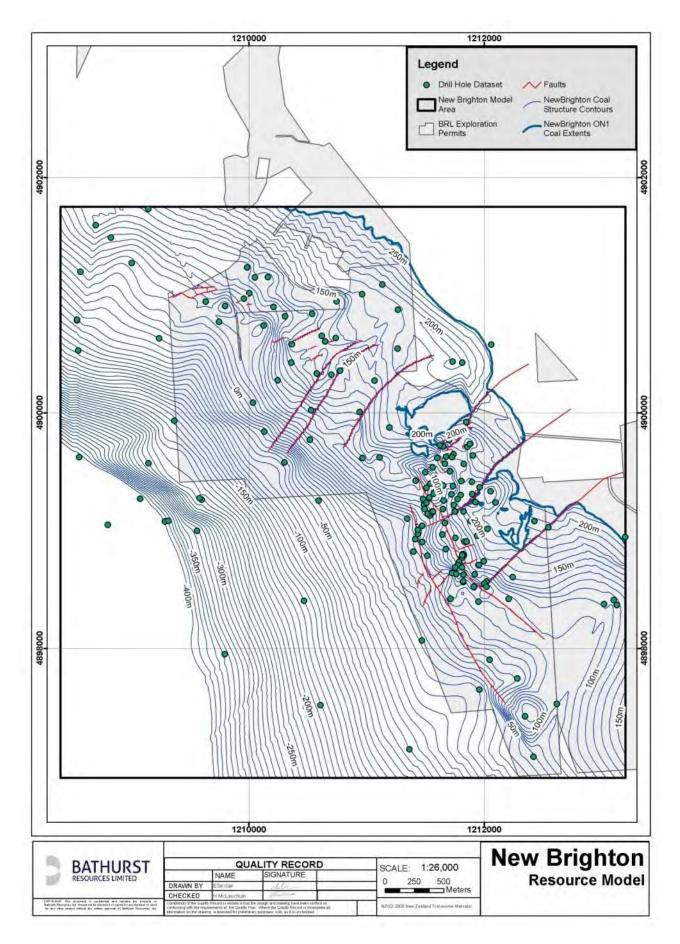


Figure 15: New Brighton (ON1 seam) coal floor contours

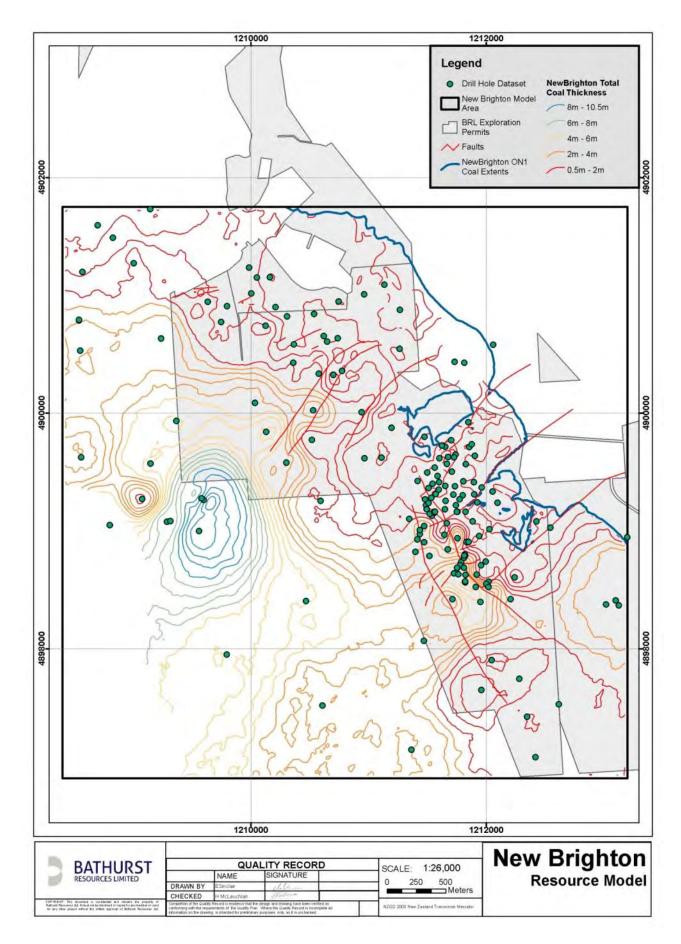


Figure 16: New Brighton formation cumulative coal thickness isopachs

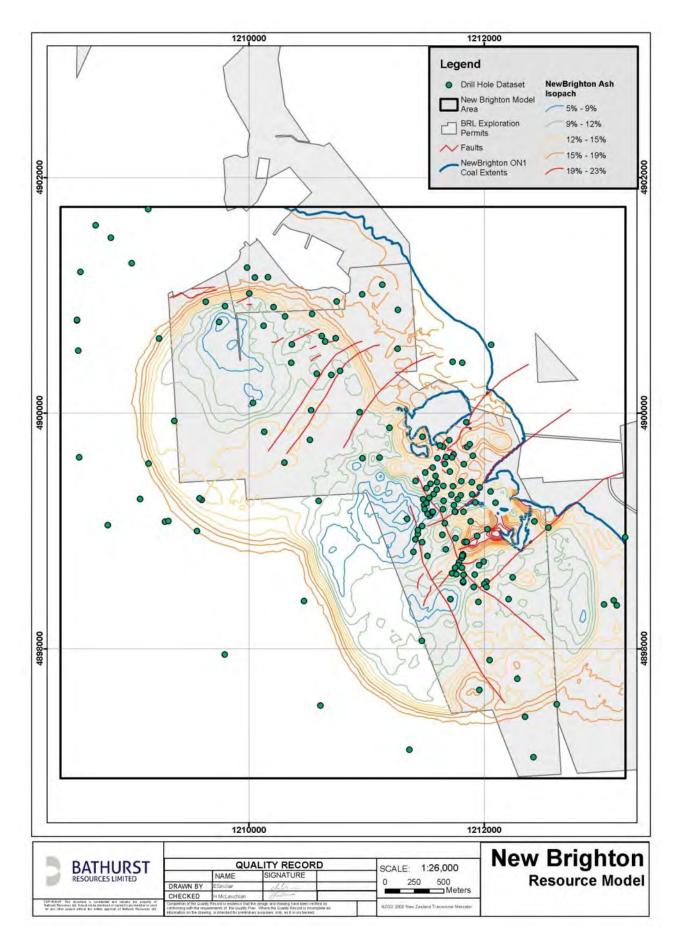


Figure 17: New Brighton formation full seam ash isopachs

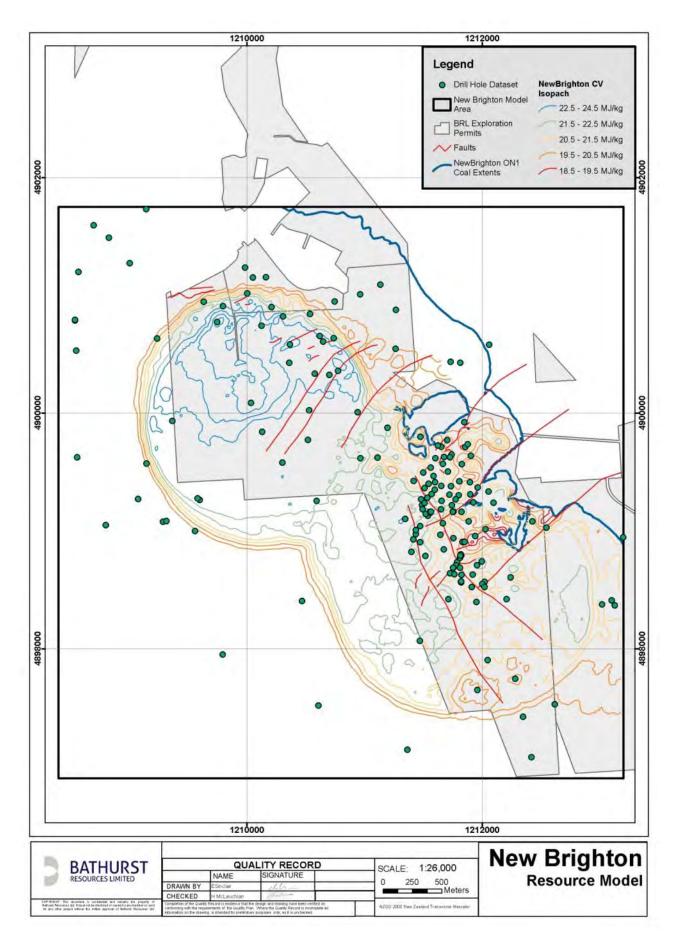


Figure 18: New Brighton formation full seam calorific value isopachs

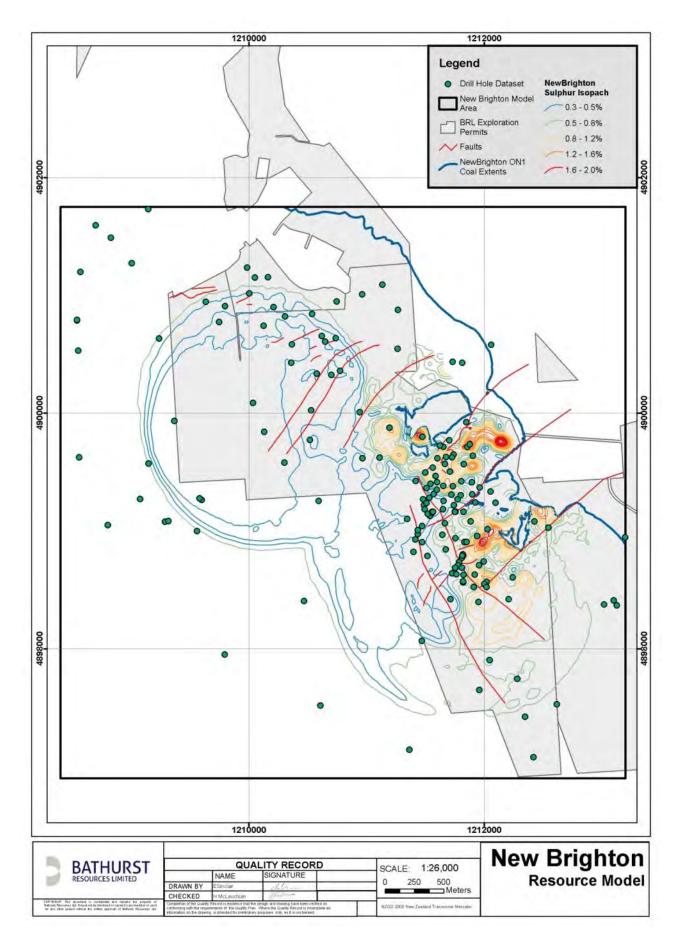


Figure 19: New Brighton formation full seam sulphur isopachs

# JORC Code, 2012 Edition - Table 1 Report for the Albury Project 2020

Section 1 Sampling Techniques and Data

Criteria	Commentary					
Sampling techniques	<ul> <li>Albury, South Canterbury is a historic mining district, with recorded coal production from 1880's. Limited historic exploration data of varying quality is available for parts of the area.</li> <li>Modern exploration includes: <ul> <li>7 HQ Triple Tube Core (TTC) drillholes.</li> <li>16 outcrop trenches and mapped seam intersections.</li> </ul> </li> <li>Coal sampling was based on the BRL Coal Sampling procedures. Coal quality ply samples have been selected on all coal logged by a geologist where the geologist had 95% confidence that the ash will fall below 50%. Material with an estimated ash over 50% was not sampled unless the material was a sandstone parting of &lt; 0.1m in thickness within a coal seam whereby it would be included within a larger ply sample.</li> <li>Outcrop trench and channel samples provide a significant proportion of the sample dataset. Coal seam thickness and partings between seams were measured either vertically or as a true thickness. Trench data is entered into the drilling database using azimuth and dip orthogonal to seam dip.</li> <li>Outcrop coal samples were collected as channel samples through the coal seams.</li> <li>All analytical data has been assessed and verified before inclusion into the resource model.</li> <li>No deep holes (&gt;120m) have been drilled in the project area and therefore no down dip information of the deposit is available.</li> </ul>					
Drilling techniques	<ul> <li>BRL managed exploration and drilling campaigns have utilised the following drilling methods:         <ul> <li>Full HQ Triple Tube Core.</li> <li>Trenches excavated using a 20T excavator.</li> </ul> </li> <li>Exploration drillholes have been drilled vertical.</li> </ul>					
Drill sample recovery	<ul> <li>Core recovery was measured as the length of core recovered divided by the length of drillers run and noted by the core logging geologist. If recovery of coal intersections dropped below 90%, the drillhole may require a re-drill (no re-drills have yet been required).</li> <li>Recovery of coal seams in the Albury deposit has been very good due to the strong nature of the coal with average coal recovery at 97.5%.</li> <li>Average total core recovery over the recent drilling campaigns in Albury was 89.5%, however when broken down it shows that overlying soil, loess and burnt surface material recovery was 61.7% while coal measure core was recovered at a rate of 91.7%.</li> </ul>					
Logging	<ul> <li>Sample recovery has been deemed not applicable to trench and channel sampling.</li> <li>BRL has developed a standardised core logging procedure and all core logging completed by BRL have followed this standard.</li> <li>All drill core has been geologically and geotechnically logged by experienced geologists.</li> <li>As much data as practicable has been logged and recorded including geotechnical and rock strength data.</li> <li>All drill core was photographed prior to sampling. Depth meter marks and ply intervals are noted on core in each photograph.</li> </ul>					
Sub-sampling techniques and sample preparation	<ul> <li>For all exploration data acquired by BRL, an in-house detailed sampling procedure was used. Sampling and sample preparation are consistent with international coal sampling methodology.</li> <li>Drill core ply samples include all coal recovered for the interval of the sample. Core was not cut or halved. Ply sample intervals were generally 0.5m unless dictated by thin split or parting thickness. Coal sample size is considered adequate to be representative of the coal seam quality.</li> <li>All modern sampled drilling has been completed using triple tube cored holes. No chip or RC samples are taken in these campaigns.</li> <li>Trench samples were taken representatively from excavated and cleaned outcrop, preventing sampling of weathered coal and other contamination of the sample. Sample intervals were measured vertically, orthogonal to the seam or at the angle of the trench plunge and were</li> </ul>					

#### Criteria Commentary generally 0.5m or less. No field sample duplicates have yet been taken or analysed. Sample sizes generally aim to be at least 1kg of coal per 0.5m sampled. All assay samples were collected on site. Samples are stored in sealed plastic bags and taken as soon as practicable to the coal quality laboratory. Quality of All coal quality testing completed for BRL has been carried out by accredited laboratory SGS assay data New Zealand Limited (SGS). and laboratory SGS have used the following standards for their assay test work: tests Proximate analysis (ASTM 7582) 0 Ash (ISO 1171) Volatile matter (ISO 562) 0 Inherent moisture (ISO 5068) 0 Total sulphur analysis (ASTM 4239) Crucible swell tests (ISO 501) 0 Calorific value results (ISO 1928) Loss on drying data (ISO 13909-4) Relative density (AS 1038.21.1.1) 0 BRL has completed a total of 19 full seam composite samples. Composite samples have been tested using the following standards: **Test Work** Standard Followed Loss on air drying (100 12000 4)

Loss on air drying	(130-13909-4)	
Inherent Moisture	(ASTM D 7582 mod)	
Ash	(ASTM D 7582 mod)	
Volatile Matter	(ASTM D 7582 mod)	
Fixed Carbon	By difference	
Sulphur	(ASTM D 4239)	
Swelling Index	(ISO 501)	
Calorific Value	(ISO 1928)	
Mean Maximum Reflectance All	Laboratory Standard	
Vitrinite (RoMax)		
Chlorine in Coal	(ASTM D4208)	
Hardgrove Grindability Index	(ISO 5074)	
Gieseler Plastometer	(ASTM D 2639)	
Audibert Arnu Dilatometer	(ISO 349)	
Forms of Sulphur	(AS 1038 Part 11)	
Ash Fusion Temperatures	(ISO 540)	
Ash Constituents (XRF)	(ASTM D 4326)	
Ultimate Analysis	Laboratory Standard	
All analysis was undertaken and reported on an Air-Dried Basis (ADB) unless stated otherwise.		

#### Verification of sampling and assaying

- Sample assay results have been cross referenced and compared against lithology logs and downhole geophysics data. Results are also inspected by experienced geologists and compared with expected values utilising known coal quality relationships for similar New Zealand coalfields.
- Anomalous assay results were investigated, and where necessary the laboratory was contacted and a retest undertaken from sample residue.
- and a retest undertaken from sample residue.
  No twinned holes have been drilled at the project, and no field duplicate trench samples have
- been taken.
  Laboratory data is imported directly into an Acquire database with no manual data entry at either
- the SGS laboratory or at BRL.
  Assay results files are securely stored on a backup server, once validated, drillhole information is 'locked' in an Acquire database to ensure the data is not inadvertently compromised.
- BRL commissioned a series of duplicate samples to be completed by CRL Energy ltd. These samples have repeated tests performed by SGS on a subset of ply samples selected at random.

Criteria	Commentary				
	Results of the duplicate testing showed an average variation of 1.2% of the value for each quality				
l a sation of	showing good analytical precision.				
Location of data points	Drillhole and trench positions have been surveyed by contract surveyors using RTK survey				
	<ul> <li>equipment.</li> <li>Historic mine plans are poorly constrained spatially and a large variance from the current</li> </ul>				
	georeferenced images is possible.				
	New Zealand Trans Mercator 2000 Projection (NZTM) is used by BRL for the Albury project area.				
	NZTM is considered a standard coordinate system for general mapping within New Zealand.				
	Historic data has been converted from various local circuits and map grids using NZ standard				
	<ul> <li>cadastral conversions.</li> <li>A LiDAR survey was carried out over the Albury area in March 2018. This LiDAR data provides</li> </ul>				
	very accurate topographic data used in the model. Contractors specifications state that for the				
	choice of sensor and operating settings used for this project the LiDAR sensor manufacturer's				
	specification states 0.15m (1-sigma) horizontal accuracy and 0.1m (1-sigma) as the open ground				
	elevation accuracy.				
	<ul> <li>Surveyed elevations of drillhole collars are validated against the LiDAR topography and ortho corrected aerial photography.</li> </ul>				
Data spacing and	The exploration work has been concentrated along strike of the dipping coal measure sequence and therefore produces a very linear detect.				
distribution	<ul> <li>and therefore produces a very linear dataset.</li> <li>Drillholes and trench sample locations are unable to be spaced equally or on a grid pattern due</li> </ul>				
	to the dipping nature of the deposit and limitation of site access.				
	Primary sample spacing has not been estimated over the deposit. There are nine coal seam				
	packages in the deposit and only a subset of these seams are intersected by each drillhole or				
	<ul> <li>trench, therefore the average sample spacing for each individual seam in the deposit varies.</li> <li>Drillhole spacing is not the only measurement used by BRL to establish the degree of resource</li> </ul>				
	Drillhole spacing is not the only measurement used by BRL to establish the degree of resource uncertainty and therefore the resource classification. BRL uses a multivariate approach to				
	resource classification, whereby sample spacing within each seam daughter seam provides the				
	primary evidence of continuity used to classify that daughter seam.				
	The current drillhole spacing is deemed sufficient for coal seam correlation purposes within				
	targeted areas.				
	<ul> <li>Geostatistics of the Albury dataset has been examined but variography results for many seams were incomplete due to the uneven distribution of drillholes with coal qualities.</li> </ul>				
	The samples database is composited to full daughter seam thickness prior to coal quality grid				
	estimation.				
Orientation of	All recent exploration drilling has been completed at a vertical orientation. All historic drillholes				
data in relation to	are vertical; those without deviation plots are assumed to be vertical.				
geological	<ul> <li>Any deviation from the vertical is not expected to have a material effect on geological understanding due to the shallow nature of project. Average drillhole depth in the dataset is</li> </ul>				
structure	51.12m with the deepest coal intersection of 52.21m.				
	<ul> <li>The majority of the deposit presents a shallow seam dip between 3° – 15°.</li> </ul>				
	Vertical drilling is considered the most suitable drilling method for the Albury deposit to provide				
	unbiased data.				
	<ul> <li>Trenches are usually orientated perpendicular to the strike of bedding. Surface intersections are surveyed and are then adjusted to simulate a drillhole. Trench data is logged in such a way as</li> </ul>				
	to simulate a drillhole drilled from the collar point of the trench.				
Sample	Stringent sample preparation and handling procedures have been followed by BRL.				
security	Ply samples are taken and recorded from drill core, bagged and securely stored prior to being				
	dispatched for analysis.				
	<ul> <li>Samples are normally hand delivered to SGS by BRL staff, thus removing the potential for third parties to tamper with the samples.</li> </ul>				
	<ul> <li>It is not considered likely that individual coal samples face a risk of theft or sabotage as coal is a</li> </ul>				
	bulk commodity with little value for small volumes of coal from drill core.				
Audits or	BRL has reviewed the geological data available and considers the data used to produce the				
reviews					

Criteria	Commentary
	resource model is reliable and suitable for the purposes of generating a resource estimate to the extent that the resource has been classified.
	<ul> <li>Results of a duplicate sample testing program comparing SGS and CRL assay results shows little analytical error or bias between laboratories.</li> </ul>
	<ul> <li>The Competent Person undertakes audits of the sample collection and analysis.</li> </ul>

### Section 2 Reporting of Exploration Results

	Commentary						
Criteria	Commentary						
Mineral tenement and land tenure status	<ul> <li>Coal is Crown owned within the Albury project area.</li> <li>The Albury Resource Model is entirely with exploration permit (EP) 54846 owned by BRL.</li> <li>Permit/Rights Operation Expiry</li> </ul>						
	<b>Exploration Permit</b> Albury 04/03/2023 54846						
	<ul> <li>It is considered that there are reasonable prospects to negotiate access arrangements for mining with landowners covering the reported resource areas. BRL have not reported any resources fo the Albury project where land access and/or mineral rights have been withheld.</li> </ul>						
Geology	<ul> <li>The project is located in the Albury Coalfield, South Island, New Zealand.</li> <li>The defined resource is contained within the Miocene aged White Rock Coal Measure., which forms a thin (700m) band of coal measures striking NE/SE. The band is cut off by strike slip faults to the west and is unconformably covered by Pleistocene and Quaternary gravel to the south.</li> <li>The coal seam present in the area is reported to dip to the south at approximately 10°.</li> <li>Glacial derived windblown loess deposits mantle much of the area.</li> <li>Generally, the project area is structurally simple. Coal seams are not greatly affected by cross cutting faults.</li> </ul>						
Drillhole Information	<ul> <li>No exploration results are being presented in this report, rather this report is focused on advanced projects that have been defined by geological models with associated resource estimates completed.</li> <li>Due to consistent nature of coal deposits and the bulk nature of the commodity, exclusion of this information from this report is considered to not be material to the understanding of the deposit.</li> </ul>						
Data aggregation methods	<ul> <li>Exploration drilling results have not been reported.</li> <li>The maximum ash cut off for building the Albury structure model was set at 25%.</li> <li>Resources have been reported with a block ash cut-off of 15%.</li> <li>A minimum coal seam vertical thickness cut-off of 0.5m was used to remove thin coal seams from the resource model.</li> </ul>						
Relationship between mineralisation widths and intercept lengths	<ul> <li>Exploration drilling results have not been reported.</li> <li>Coal seams in the project area strike ~060° and dip between 9° and 12° to the south east.</li> <li>All recent drillholes were drilled vertically.</li> <li>Coal seam thicknesses are reported as apparent thickness down hole.</li> </ul>						
Diagrams	<ul> <li>Diagrams can be found in Appendix A for each of the following:         <ul> <li>Location map</li> <li>Map showing regional geology</li> <li>Map showing exploration permit boundary</li> <li>Map showing exploration data</li> <li>Map showing G seam coal roof contours</li> <li>Map showing resource confidence</li> <li>Cross section through Albury deposit</li> </ul> </li> </ul>						
Balanced reporting	<ul> <li>No exploration results are being presented in this report, rather this report is focused or advanced projects that have been defined by geological models with associated resource estimates completed.</li> </ul>						

Criteria	Commentary
	<ul> <li>The exclusion of this information from this report is considered to not be material to the understanding of the deposit.</li> </ul>
Other substantive exploration data	<ul> <li>The resources reported in this report relate to the area in and around and existing operating coal mine.</li> <li>Geotechnical logs and samples were taken by the geologist during all exploration by BRL. Geotechnical logs identified defect types, angles and character through cored intervals. Geotechnical samples were taken of seam roof, floor and overburden material.</li> <li>Geochemical characterisation of overburden material for acid base accounting (ABA) purposes has been conducted. These results have been used to construct an ABA model.</li> </ul>
Further work	<ul> <li>Further exploration is planned along strike both to the north and south of the historic opencast pit.</li> </ul>

## Section 3 Estimation and Reporting of Mineral Resources

Criteria	Commentary
Database integrity	<ul> <li>BRL utilizes an Acquire database to store and maintain its geological exploration dataset.</li> <li>The Acquire database places explicit controls on certain data fields as they are entered or imported into the database such as overlapping intervals, coincident samples, illegal sample values, and standardised look-up tables for logging codes.</li> <li>Manual data entry of assay results is not required as results are imported directly from reported laboratory results files.</li> </ul>
Site visits	• Hamish McLauchlan (the Competent Person) has undertaken the majority of the work on the Albury project.
Geological interpretation	<ul> <li>BRL has confidence in the geological model and the interpretation of the available data. Confidence varies for different areas and this is reflected by the resource classification.</li> <li>Downhole gamma logs are a key tool in correlating the often thin and numerous seam packages between drillholes.</li> <li>BRL uses a multivariate approach to resource classification which takes into account a number of variables.</li> <li>BRL considers the amount of geological data sufficient to estimate the resource.</li> <li>Uncertainty surrounds historic underground mine workings, both in the quality and quantity of coal extracted, which seam was mined and surveying and spatial location of underground workings. This uncertainty is reflected in the resource classification.</li> <li>Quaternary gravel deposits overlie the coal measures unconformably over the southern portion of the project area. Some uncertainty surrounds the depth of erosion and the extent of the quaternary deposits. A conservative approach to modelling this Quaternary erosional surface has been used in the model and is reflected within the resource status.</li> </ul>
Dimensions	<ul> <li>Depth of cover varies from 0m at outcrop to over 200m at the south-eastern boundary of the model. The strike length of the deposit is in excess of 2km.</li> </ul>
Estimation and modelling techniques	<ul> <li>All available and reliable exploration data has been used to create a geological block model for resource estimation and classification.</li> <li>All exploration drilling data is stored in Acquire and exported into a Maptek Vulcan drillhole database.</li> <li>Mapping data including coal seam thickness and roof/floor points is stored in Acquire and exported into Vulcan.</li> <li>Interpretive data is stored within Vulcan in various layers.</li> <li>A horizons definition has been developed and is used in the stratigraphic modelling process.</li> <li>Vulcan 9.1.8 was used to build the structure model. Grid spacing is 10m x 10m. This spacing was selected to be 1/5 of the minimum data spacing of a targeted area.</li> <li>Vulcan's Hybrid method is used to produce the structure model. This method triangulates a reference surface and then stacks the remaining horizons by adding structure thickness grids. Thickness grids are created using inverse distance. Design data from other horizons is</li> </ul>

#### Criteria Commentary incorporated into the final grid structure. The maximum triangle length for the reference surface was set to 800m. The maximum search radius for inverse distance is 800m. The inverse distance power is set to 2, with maximum samples set to 6. Structure grids are checked and validated before being used to construct the resource block model. Vulcan 9.1.8 is used to build the block model. The coal structure surfaces, along with LiDAR topography surface, quaternary unconformity, and opencast mined out surfaces are used to build the block model. The block dimensions are constructed at 10m x 10m. Vertical thickness for coal blocks is 0.5m, whilst overburden blocks have no maximum thickness. All seams have a maximum search radius of 500m. If a coal block is not estimated during the grade estimation process the blocks are not reported as resources. Grade estimation is performed utilizing Vulcan's Tetra Projection Model. Proximate and Sulphur coal qualities are estimated on an air-dried basis. Ash, moisture, and volatile matter are estimated simultaneously. Calorific value is estimated on a dry ash free (DAF) basis and converted to an air-dried basis based on the block ash and moisture estimates. This enables changes in coal rank across the area to be accurately modeled. Geostatistics of the coal quality dataset has been investigated to examine and define the estimation search parameters; however the results have been poor due to the non-normal distribution of the data along strike of the deposit. Various methods have been used to check the validity of the block estimation. This includes manual inspection of the model, QQ plots of block model qualities vs the coal quality database and other comparison tools. Resource tonnages within historic underground workings areas have been discounted by an estimated average extraction rate. The primary underground mining method utilised historically in the Albury area is bord and pillar mining. Historic extraction rates vary however the rate used to discount coal tonnages within worked seams in the model is 50% of the original unmined tonnage. Moisture Resource tonnages are reported using natural bed moisture, calculated from air-dried density, air-dried moisture and in situ moisture using the Preston Sanders equation. Cut-off Stratigraphic structure grids have been developed based on a 25% ash cut-off. parameters No lower cut-off has been applied. There is an inherent minimum limit to ash samples in modern results due to a laboratory lower detection limit of 0.17% (adb). Coal resources are reported down to a seam thickness of 0.5m (one block). Mining factors It is assumed that any future mining operation would have a minimum vertical daughter seam thickness of 0.5m as a minimum mining horizon cut-off. assumptions Only coal that falls within an optimised pit shell with revenue factor 0.65 is reported as resources. Costs and revenue parameters used in the pit optimisation are based on the costs at comparative BRL sites and include allowances for royalties, commissions, mining costs, coal processing and administration, and basic mining and processing losses. Estimated revenue is based on existing supply agreements to other sites. No other mining factors such as strip ratios, mining losses and dilutions have been applied when developing the resource model or reporting resource tonnages. Metallurgical No metallurgical assumptions have been applied in estimating the resource. factors or assumptions Environmental • Studies for ABA characterisation of overburden studies have been completed. It is not expected factors or that these will prevent eventual economic extraction of the resource. assumptions No other environmental assumptions have been applied in developing the resource model. Limited environmental approvals are currently in place to begin to operate the operation. It is reasonably expected that any modifications to existing agreements or additional agreements that will be required to operate in this area can be obtained in a timely manner.

Criteria	Commentary				
Bulk density	<ul> <li>After grade estimation air-dried density is calculated from the air-dried ash value using the ash-density relationship derived from the Southland lignite investigation in the Croydon and New Vale fields. Analysis of the coal from Albury show they are very similar to the coal from these Coalfields.</li> <li>An in situ density value is then computed using the Preston Saunders method.</li> </ul>				
Classification	<ul> <li>BRL classifies resources using a multivariate approach.</li> <li>Coal resources have been classified on the basis of geological and grade continuity balanced by relative uncertainties surrounding historic underground extraction and proximity to faults and unconformities. The result reflects the Competent Person's view of the deposit.</li> <li>Closely spaced drilling with valid samples increases the confidence for each seam in resource assessments.</li> <li>The confidence is reduced by:         <ul> <li>A block being within an underground worked area due to extraction rate uncertainty.</li> <li>Thin coal, where thickness is 0.5m or less.</li> <li>A block lies below but within 2m of the Quaternary unconformable surface.</li> </ul> </li> </ul>				
Audits or reviews	A review of the resource model has been carried out by the Competent Person.				
Discussion of relative accuracy/confidence	<ul> <li>Statistical comparisons between the resource block model and the coal quality data set have been carried out and are within expected ranges. Some anomalies exist due to non-normal data distribution. Techniques utilised include QQ plots and probability plots.</li> <li>The location of the historic underground workings in the area is poorly understood hence a conservative depletion polygon and extraction factor has been used.</li> <li>The use of an ash density curve from another deposit has the potential to cause small variances in situ bulk density.</li> <li>To compensate for these two factors, coal that would have normally been classed as measured has been downgraded to an indicated classification.</li> </ul>				

#### Appendix A:

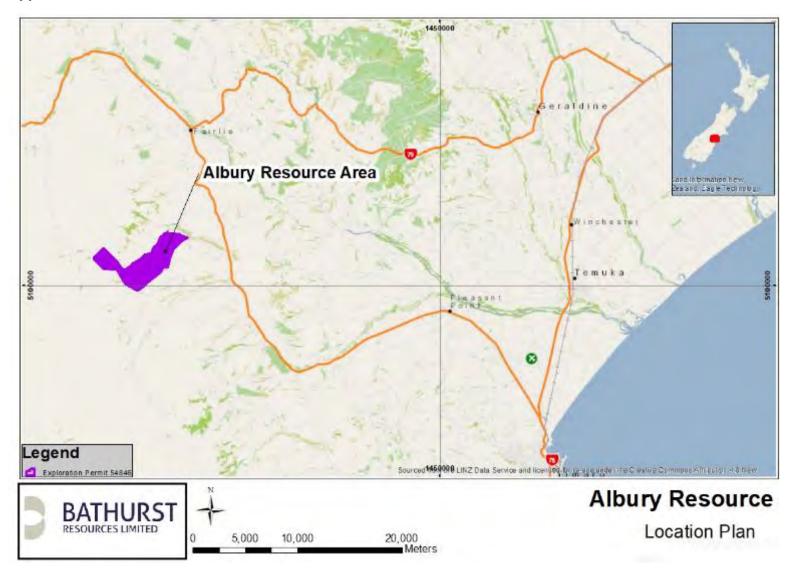


Figure 1: Location plan showing the proximity of the resource model area to regional centres and potential markets

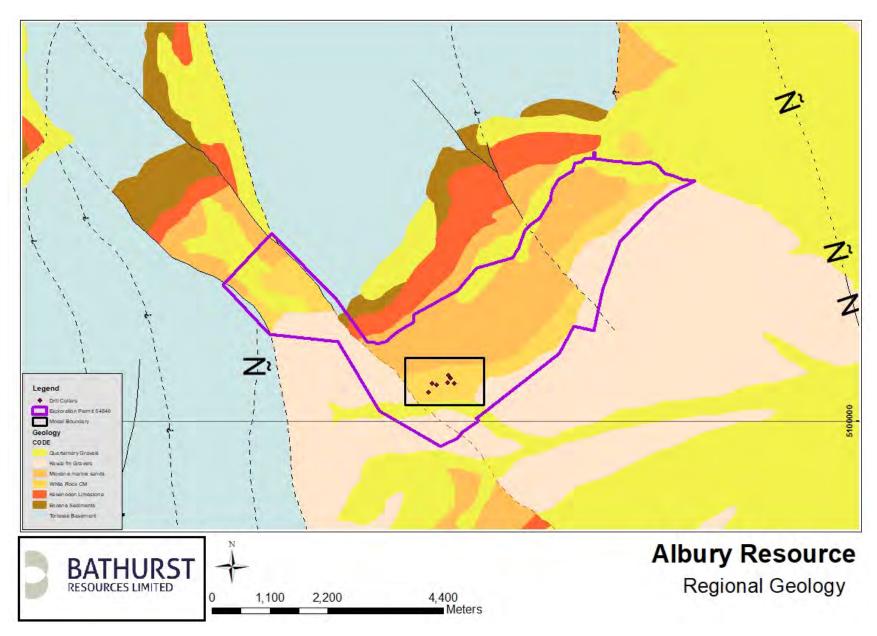


Figure 2: Generalised map of Albury Coalfield showing geological units and faults

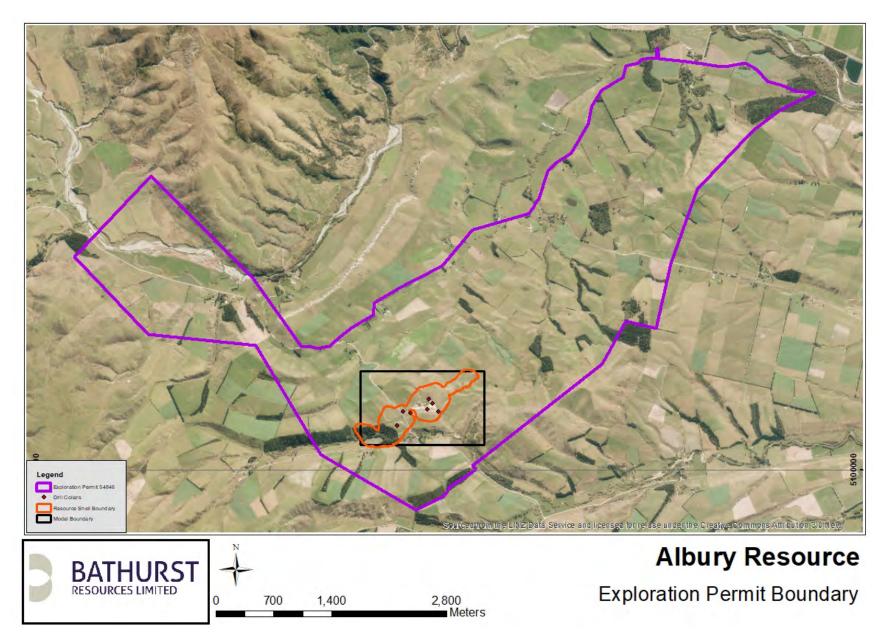


Figure 3: Exploration permit

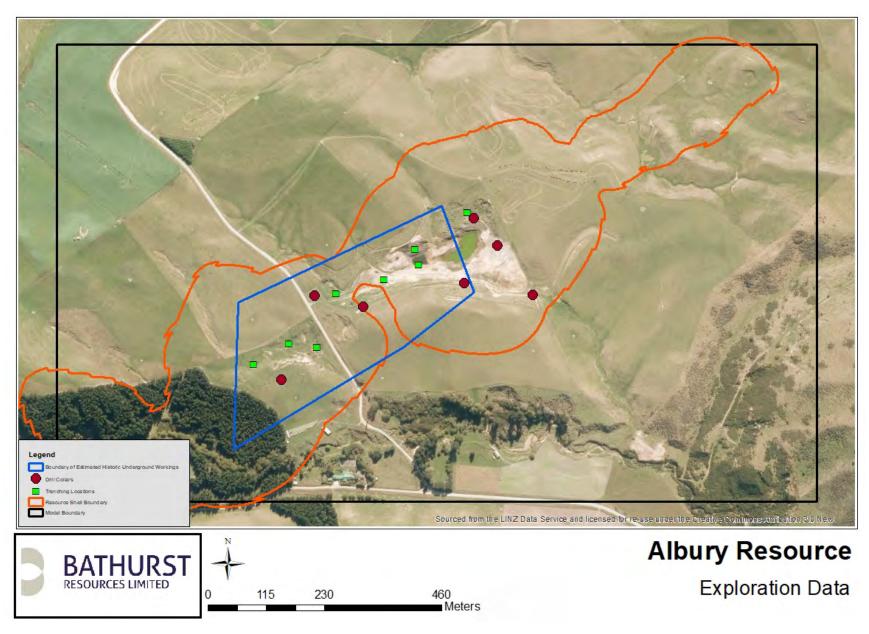


Figure 4: Exploration drillhole dataset and extent of historic underground coal mines for the Albury project

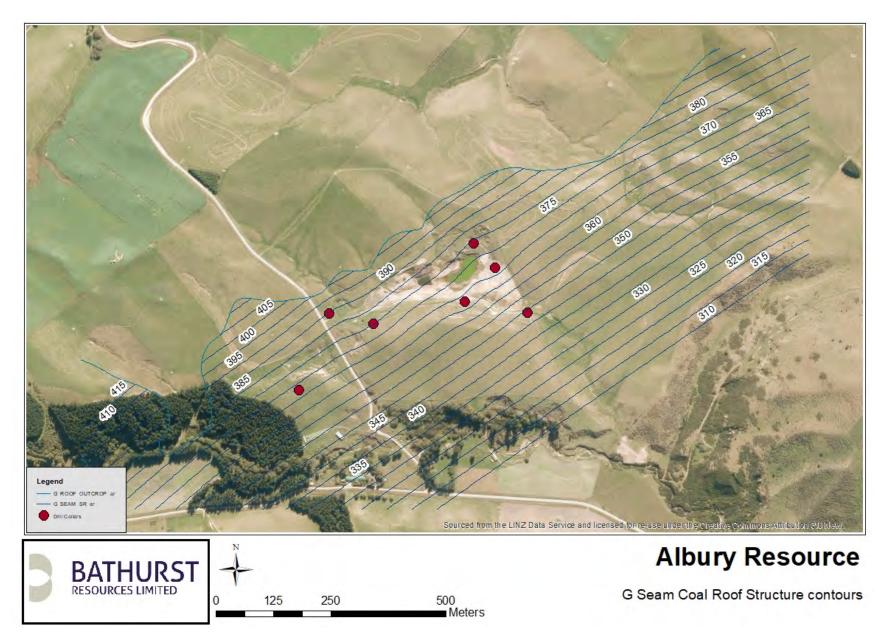


Figure 5: Structure contours of the G Seam roof

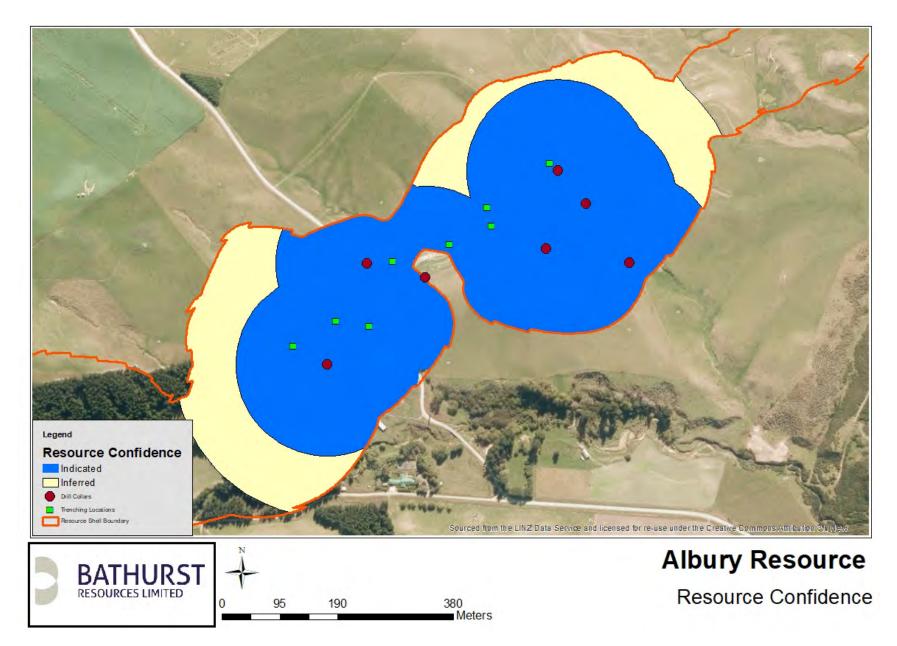
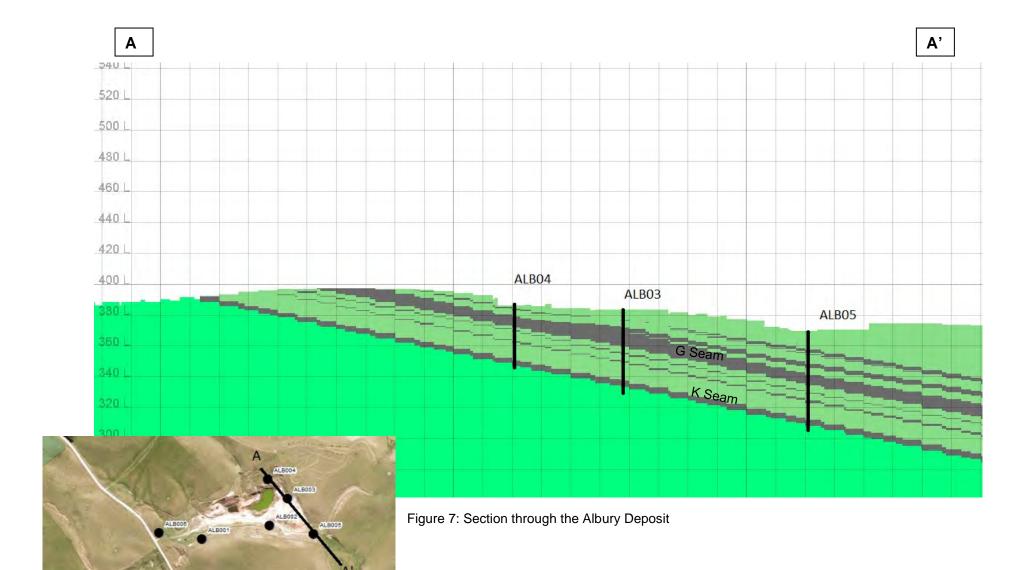


Figure 6: Resource Confidence



# JORC Code, 2012 Edition - Table 1 Report for the Canterbury Project 2020

Section 1 Sampling Techniques and Data

#### Criteria

#### Commentary

# Sampling techniques

- Malvern Hills, Coalgate, Canterbury is a historic mining district, with recorded coal production from over 77 mines since 1872. Some historic exploration data of varying quality is available for parts of the area.
- Modern exploration includes:
  - o 72 PQ/HQ Triple Tube core (TTC) drillholes.
  - 13 percussive probe holes.
  - 13 RC drillholes.
  - 81 outcrop trenches and mapped seam intersections.
- Recent drilling has aimed to infill areas around zones of historic workings that are lacking quality
  data and to test reliability of historic data. The most recent drilling concentrated on extending
  resources to the north east along strike of the current operations.
- BRL targeted to geophysically log every drillhole where down hole conditions and operational
  constraints allowed. Initially Field Tech Services Ltd was contracted for down hole geophysical
  services, utilising a natural gamma tool. From June 2016 the geophysical logging equipment was
  hired and operated by BRL geologists.
- Natural gamma was usually run through a PVC standpipe installed into each hole after completion, or through the in situ drill string. Natural gamma produces a very reliable trace for use in seam correlation and depth adjustment due to relatively abundant clays in the Broken River Formation coal measures.
- Down hole geophysics data was essential to correlate coal seams, to confirm depths and thickness of coal seams and to validate drillers' logs. Geophysics was also used to accurately calculate recovery rates of coal.
- Coal sampling was based on the BRL Coal Sampling procedures. Coal quality ply samples have been selected on all coal logged by a geologist where the geologist had 95% confidence that the ash will fall below 50%. Material with an estimated ash over 50% was not sampled unless the material was a sandstone parting of < 0.1m in thickness within a coal seam whereby it would be included within a larger ply sample.
- Outcrop trench and channel samples provide a significant proportion of the sample dataset. Coal seam thickness and partings between seams were measured either vertically or as a true thickness. Trench data is entered into the drilling database using azimuth and dip orthogonal to seam dip.
- Outcrop coal samples were collected as channel samples through the coal seams.
- All analytical data has been assessed and verified before inclusion into the resource model.
- No Deep holes (>120m) have been drilled in the project area and therefore no down dip information of the deposit is available.
- Due to the coal seam dip and lack of continuity along strike of some seams, no single drillhole has been drilled that intersects all of the coal seams in the stratigraphic sequence.

# Drilling techniques

- BRL managed exploration and drilling campaigns have utilised the following drilling methods:
  - Full PQ Triple Tube Core (TTC). In one case overlying strata was open holed through.
  - Full HQ Triple Tube Core.
  - RC and conventional percussive probe holes.
  - PQ reducing to HQ Triple Tube Core where necessary.
  - o Trenches excavated using 20T and 30T excavators.
  - Trench/Channel samples taken within active mining areas.
- Historic exploration and drilling techniques include:
  - Air circulation blade and hammer.
  - o Reverse circulation blade and hammer.
  - o Air core.

#### Criteria Commentary Rotary wash. 0 Trenches excavated using a 20T excavator and by hand methods. Exploration drillholes have been drilled at a range of inclinations ranging from vertical to 45°. Exploration holes drilled by BRL have been drilled to intersect the dip at approximately 90°. Drill core from angled holes was not orientated. Drill sample Core recovery was measured as the length of core recovered divided by the length of drillers run recovery and noted by the core logging geologist. If recovery of coal intersections dropped below 90% the drillhole may require a re-drill (no re-drills have yet been required). Recovery of coal seams in the Canterbury deposit has been very good due to the strong nature of the coal with average coal recovery at 96.5%. Downhole Gamma geophysical data was used to confirm coal recoveries. Average total core recovery over the recent drilling campaigns in Canterbury was 88.6%, however when broken down it shows that overlying soil, loess and quaternary gravel recovery was 61.7% while coal measure core was recovered at a rate of 92.8%. Where small intervals of coal were lost and where geophysics indicated strongly that coal was lost, ash values for the lost section were estimated using the results of overlying and underlying ply samples and the relative response of natural gamma trace. Sample recovery has been deemed not applicable to trench and channel sampling. Logging BRL has developed a standardised core logging procedure and all core logging completed by BRL have followed this standard. All modern drill core has been geologically and geotechnically logged by either an experienced geologist or by geologists under the supervision and guidance of experienced exploration geologists. As much data as practicable has been logged and recorded including geotechnical and rock strength data. All drill core was photographed prior to sampling. Depth meter marks and ply intervals are noted on core in each photograph. Down hole geophysical logs were used to aid core logging and to ensure true down hole depths are recorded. Sub-sampling For all exploration data acquired by BRL, an in-house detailed sampling procedure was used. techniques Sampling and sample preparation are consistent with international coal sampling methodology. and sample Drill core ply samples include all coal recovered for the interval of the sample. Core was not cut preparation or halved. Ply sample intervals were generally 0.5m unless dictated by thin split or parting thickness. Coal sample size is considered adequate to be representative of the coal seam quality. All modern sampled drilling has been completed using triple tube cored holes. No chip or RC samples are taken in these campaigns. For historical data, sample preparation processes are unknown. However no historical drillhole coal quality results are used in the resource estimation. Trench samples were taken representatively from excavated and cleaned outcrop, preventing sampling of weathered coal and other contamination of the sample. Sample intervals were measured vertically, orthogonal to the seam or at the angle of the trench plunge and were generally 0.5m or less. No field sample duplicates have yet been taken or analysed. Sample sizes generally aim to be at least 1kg of coal per 0.5m sampled. Most assay samples were collected on site however some were completed at the core repository after transport from drill site in core boxes. Samples are stored in sealed plastic bags and taken as soon as practicable to the coal quality laboratory. Quality of All coal quality testing completed for BRL has been carried out by accredited laboratory SGS assay data New Zealand Limited (SGS). and laboratory SGS have used the following standards for their assay test work: tests **Chemical Analysis** Proximate analysis (ASTM 7582) Sulphur (ASTM 4239-04A) Total Moisture (ISO 589)

#### Criteria

#### Commentary

#### **Ultimate Analysis**

Ash (ISO 1171)

Volatile Matter (ISO 562)

Inherent Moisture (ISO 5068)

Crucible Swell (ISO 501)

Calorific Value (ISO 1928)

Loss on Drying Data (ISO 13909-4)

#### **Rheological and Physical Analysis**

Relative Density (AS 1038.21.1.1)

 BRL has completed a total of 24 full seam composite samples. Composite samples have been tested using the following standards:

#### **Chemical Analysis**

Loss on Air Drying Data (ISO 13909-4)

Inherent Moisture (ASTM D 7582 mod)

Sulphur (ASTM D 4239)

#### **Ultimate Analysis**

Ash (ASTM D 7582 mod)

Volatile Matter (ASTM D 7582 mod)

Fixed Carbon (by difference)

Ultimate Analysis (Laboratory Standard)

Chlorine in Coal (ASTM D4208)

Forms of Sulphur (ASO 1038 Part 11)

Calorific Value (ISO 1928)

Mean Maximum Reflectance All Vitrinite (RoMax) (Laboratory Standard)

Ash Fusion Temperatures (ISO 540)

Ash Constituents (XRF) (ASTM D 4326)

#### Rheological and Physical Analysis

Hardgrove Grindability Index (ISO 5074)

Gieseler Plastometer (ASTM D 2639)

Audibert Arnu Dilatometer (ISO 349)

Swelling Index (ISO 501)

All analysis was undertaken and reported on an air-dried basis unless stated otherwise.

#### Verification of sampling and assaying

- Sample assay results have been cross referenced and compared against lithology logs and downhole geophysics data. Results are also inspected by experienced geologists and compared with expected values utilising known coal quality relationships for the Canterbury Coalfield.
- Anomalous assay results were investigated, and where necessary the laboratory was contacted and a retest undertaken from sample residue.
- No twinned holes have been drilled at the project, and no field duplicate trench samples have been taken.
- Laboratory data is imported directly into an Acquire database with no manual data entry at either the SGS laboratory or at BRL.
- Assay results files are securely stored on a backup server. Once validated, drillhole information
  is 'locked' in an Acquire database to ensure the data is not inadvertently compromised.
- BRL commissioned a series of duplicate samples to be completed by CRL Energy ltd. These samples have repeated tests performed by SGS on a subset of ply samples selected at random. Results of the duplicate testing showed an average variation of 1.2% of the value for each quality showing good analytical precision.

# Location of data points

- Modern drillhole positions have been surveyed using Trimble RTK survey equipment.
- Historic mine plans have been georeferenced by locating and surveying historic survey marks, and mine portals drawn on mine plans. Some surveyed mine plans are available from registered surveyors and engineers and these have been georeferenced using a standard coordinate

# Criteria

#### Commentary

system.

- Some historic mine plans are poorly constrained spatially and a large variance from the current georeferenced images is possible.
- New Zealand Trans Mercator 2000 Projection (NZTM) is used by BRL for the Canterbury project area. NZTM is considered a standard coordinate system for general mapping within New Zealand. Historic data has been converted from various local circuits and map grids using NZ standard cadastral conversions.
- A LiDAR survey was carried out over the Canterbury area in January 2013. This LiDAR data
  provides very accurate topographic data used in the model. Contractors specifications state that
  for the choice of sensor and operating settings used for this project the LiDAR sensor
  manufacturer's specification states 0.15m (1-sigma) horizontal accuracy and 0.1m (1-sigma) as
  the open ground elevation accuracy.
- The topography within the mine is regularly updated using ground survey and automated droned based photogrammetry.
- Surveyed elevations of drillhole collars are validated against the LiDAR topography and ortho
  corrected aerial photography. Historic hole collar elevations have been compared to the LiDAR
  surface and while most are within 1m to 2m of the surface, there is however a small number of
  historic holes with a large discrepancy in the RL of the collar and the LiDAR surface which may
  be due to survey errors, coordinate system conversion errors, or earthworks/mining.

# Data spacing and distribution

- Drillhole spacing in Canterbury is not homogenous. Recent exploration and drilling have targeted
  potential pit extension areas to the south west and the north east of the actively mined area.
  Historic exploration data focuses on the current open pit and further to the north and south of the
  current operation.
- The exploration work has been concentrated along strike of the steeply dipping coal measure sequence and therefore produces a very linear dataset.
- Drillholes and trench sample locations are unable to be spaced equally or on a grid pattern due
  to the steep nature of the deposit and limitation of site access. Sample locations are often located
  to confirm specific matters such as economic pit shell limits, coal quality concerns and to confirm
  coal seam correlation.
- Recent drilling campaigns have relied on a frame work of Triple Tube Core holes infilled with percussive holes. Infill holes are used to confirm the geological structure and seam thickness between cored holes.
- Primary sample spacing has not been estimated over the deposit. There are 23 coal seam
  packages in the deposit and only a subset of these seams are intersected by each drillhole or
  trench, therefore the average sample spacing for each individual seam in the deposit varies.
- Drillhole spacing is not the only measurement used by BRL to establish the degree of resource uncertainty and therefore the resource classification. BRL uses a multivariate approach to resource classification, whereby sample spacing within each seam daughter seam provides the primary evidence of continuity used to classify that daughter seam.
- The current drillhole spacing is deemed sufficient for coal seam correlation purposes within targeted areas; however due to the lensoidal nature of the coal seams within the Broken River Formation some coal seam correlations north east of the modern drilling and mapping data may be incorrect.
- Geostatistics of the Canterbury dataset has been examined but variography results for many seams were poor due to the uneven distribution of drillholes with coal qualities combined with the large number of seams and structural complexity within the deposit.
- The samples database is composited to full daughter seam thickness prior to coal quality grid estimation.

# Orientation of data in relation to geological structure

- Drilling carried out by BRL has been orientated to intersect orthogonal to the general stratigraphic strike-dip plane of the deposit. Structure dip ranges from 20° in the south to 50° north of the current pit.
- Drillhole inclination was recorded at the surface using an inclinometer and compass. Drillhole
  deviation has not been verified by down hole survey tools, but any deviation from design is not
  expected to have a material effect on geological understanding of the deposit as the average

Criteria	Commentary
	<ul> <li>drillhole depth in the dataset is 52m with the deepest coal intersection of 96m downhole. At a depth of 60m an overall deviation of 1° would produce a horizontal deviation of 1m at the end of hole and a negligible thickness deviation for seams intersected at that depth.</li> <li>Angled drilling is considered the most suitable drilling method for the Canterbury deposit to provide unbiased data.</li> <li>Trenches are usually orientated perpendicular to the strike of bedding. Surface intersections are surveyed and are then adjusted to simulate a drillhole. Trench data is logged in such a way as to simulate a drillhole drilled from the collar point of the trench.</li> </ul>
Sample security	<ul> <li>Stringent sample preparation and handling procedures have been followed by BRL.</li> <li>Ply samples are taken and recorded from drill core, bagged and securely stored prior to being dispatched for analysis.</li> <li>Samples are normally hand delivered to SGS by BRL staff, thus removing the potential for third parties to tamper with the samples.</li> <li>It is not considered likely that individual coal samples face a risk of theft or sabotage as coal is a bulk commodity with little value for small volumes of coal from drill core.</li> </ul>
Audits or reviews	<ul> <li>BRL has reviewed the geological data available and considers the data used to produce the resource model is reliable and suitable for the purposes of generating a resource estimate to the extent that the resource has been classified.</li> <li>Results of a duplicate sample testing program comparing SGS and CRL assay results shows little analytical error or bias between laboratories.</li> <li>The Competent Person undertakes audits of the sample collection and analysis.</li> </ul>

## Section 2 Reporting of Exploration Results

Criteria	Commentary				
Mineral tenement and land tenure status	Coal ownership is complex throughout the Canterbury Coalfield.  The majority of potential coal resources within the Malvern Hills Coalfield, north of the Selwyn River, are classified as coal that is privately owned with coal rights being attached to the land title.  The ownership of coal rights is separate from the land ownership in a number of land parcels surrounding the Canterbury mine. Blocks to the north east of the current mining operation are held by Nimmo Collieries and by Charles Dean. Canterbury Coal Mine Limited has agreements in place to access this coal.  Royalty agreements in place for this private coal are based on the mine gate value of coal sold. Mine gate value is defined as the price received at point of sale minus ex-mine costs such as freight, handling and commissions.  There is a limited amount of Crown coal at the site, and BRL has 100% ownership of it through the following coal permit:  Permit <sup>(1)</sup> Operation Expiry				
	Mining Permit 41372 Malvern Hills 11/12/2025  (1) Coal within permit 41372 is owned by the Crown and Wakaepa Farms in a 50/50 split.				
	<ul> <li>BRL holds land access agreements over all of the areas that it currently operates at the Canterbury project and over all areas containing reported resources.</li> <li>Much of the remainder of land that makes up the Canterbury project is owned by Matariki Forests (formerly the Selwyn Plantation Board). An access arrangement is in place to allow BRL to access through the areas, allow exploration activities and to undertake mining.</li> <li>BRL have not reported any resources for the Canterbury project where land access and/or mineral rights have not been granted.</li> </ul>				
Exploration done by other parties	<ul> <li>Historic geological investigations and reports for the Canterbury Coal field have been compiled spanning the past 140 years.</li> <li>All historic data used to develop the resource model has been validated against original source documents by BRL staff. Most historic data was deemed unreliable due to a number of factors,</li> </ul>				

primarily spatial survey data was missing or poor. Unreliable historic data was not included within the resource model dataset.

 The historic drilling database includes the following drillholes compiled from the historical data records.

Years	Agency	Range of Collar ID	# Holes	Drilling Method	# Holes in structu re model	# Holes in quality model	Geophysics Available
1919- 1921	Homebush Brick and Coal	HB_Bore_01 - HB_Bore_13	13	Diamond	0	0	0
1921	Homebush Coal company	Gov_1 - Gov_7	7	Diamond	0	0	0
1944	Klondyke Colleries	Klondyke_1 - Klondyke_7	7	Diamond	0	0	0
<1949	Deans	DEANS_1 - DEANS_5	5	unknown	0	0	0
1987	Coal Corp	CoalCorp_1 - CoalCorp_4	4	Mechanical Auger	0	0	0
<1997	?	CCL_N1 - CCL_N2	2	unknown	0	0	0
1997	Yardley	CCL_Y1 - CCL_Y8	8	Rotary air	3	0	0
2002	CCL	CCL_T1 - CCL_T47	47	Trenching	9	7	0
2006	CCL	CCL_DB01 - CCL_DB16	16	RC and Air core	14	0	0

 BRL is continuing to source historic plans and reports from a number of data libraries around New Zealand. Historic data will be validated and added to the exploration dataset if it is deemed reliable.

#### Geology

- The project is located in the Canterbury Coalfield, Malvern Hills, New Zealand.
- The defined resource is contained within the late Cretaceous to Early Paleocene aged Broken River Formation, formed during the Tertiary transgressive-regressive cycle between the Rangitata and Kaikoura Orogenys.
- Overlying the coal measures is the Conway Formation, dominated by micaceous and quartz rich fine sandstones and mudstones indicative of littoral to shallow marine settings.
- Pleistocene aged glacial outwash gravels and tills mask underlying stratigraphy over much of the area. Younger river gravels also dominate larger river valleys within the area.
- Glacial derived windblown loess deposits mantle much of the area.
- Igneous intrusions are present in the Malvern Hills area. Some contact metamorphism of coal
  measures has been observed with localised rank increases observed in some Canterbury coal
  samples, however none have been noted in the current resource area.
- Generally, the project area is structurally complex. Seam dips range between 20° in the south to 50° in the north of the current open pit area. In some areas, principally on the East of the deposit there is localised overturning of the coal seams. Generally, coal seams are not greatly affected by cross cutting faults.

#### Drillhole Information

- No exploration results are being presented in this report, rather this report is focused on advanced projects that have been defined by geological models with associated resource estimates completed.
- Due to consistent nature of coal deposits and the bulk nature of the commodity, exclusion of this information from this report is considered to not be material to the understanding of the deposit.

#### Data aggregation methods

- Exploration drilling results have not been reported.
- The maximum ash cut off for building the Canterbury structure model was set at 50%.
- Resources have been reported with a block ash cut-off of 25%.
- A minimum coal seam vertical thickness cut-off of 0.25m was used to remove thin coal seams from the resource model.

Criteria	Commentary					
Relationship between mineralisation widths and intercept lengths	<ul> <li>Exploration drilling results have not been reported.</li> <li>Coal seams in the project area strike ~060° and dip between 20° and 50° to the south east.</li> <li>All recent drillholes were drilled at an angle orthogonal to coal seam structure dip.</li> <li>Some historic drilling was also inclined to intersect seams at close to 90°. Most historic holes were drilled vertically.</li> </ul>					
Diagrams	<ul> <li>Plans can be found in Appendix A for each of the following:         <ul> <li>Location map</li> <li>Map showing generalised geology</li> <li>Map showing coal rights and access</li> <li>Map showing exploration drillhole dataset</li> <li>Map showing extent of underground workings</li> <li>Map showing main coal seam roof structure contours</li> <li>Map showing main coal seam depth to roof contours</li> <li>Map showing reserve classification with pit designs</li> <li>Cross section of main coal seam</li> </ul> </li> </ul>					
Balanced reporting	<ul> <li>No exploration results are being presented in this report, rather this report is focused on an advanced project that has been defined by geological models with associated resource estimates completed.</li> <li>The exclusion of this information from this report is considered to not be material to the understanding of the deposit.</li> </ul>					
Other substantive exploration data	<ul> <li>The resources reported in this report relate to the area in and around and existing operating coal mine.</li> <li>Geotechnical logs and samples were taken by the geologist during all exploration by BRL. Geotechnical logs identified defect types, angles and character through cored intervals. Geotechnical samples were taken of seam roof, floor and overburden material.</li> <li>Geochemical characterisation of overburden material for acid base accounting (ABA) purposes has been conducted. These results have been used to construct an ABA model.</li> </ul>					
Further work	<ul> <li>Further exploration is planned along strike both to the north and south of the current opencast pit.</li> <li>Channel sampling of coal seams within the active pit are undertaken periodically.</li> </ul>					

# Section 3 Estimation and Reporting of Mineral Resources

Criteria	Commentary	
Database integrity	<ul> <li>All historic and legacy datasets have been thoroughly validated against original logs and results tables. Where reliability of the data is poor the data is excluded from the modelling process.</li> <li>BRL utilises an Acquire database to store and maintain its geological exploration dataset.</li> <li>The Acquire database places explicit controls on certain data fields as they are entered or imported into the database such as overlapping intervals, coincident samples, illegal sample values, standardized look-up tables for logging codes.</li> <li>Manual data entry of assay results is not required as results are imported directly from reported</li> </ul>	
	laboratory results files.	
Site visits	<ul> <li>Hamish McLauchlan (the Competent Person) visits the Canterbury project area on a regular basis.</li> </ul>	
Geological interpretation	<ul> <li>BRL has confidence in the geological model and the interpretation of the available data. Confidence varies for different areas and this is reflected by the resource classification.</li> <li>Downhole gamma logs are a key tool in correlating the often thin and numerous seam packages between drillholes.</li> <li>BRL uses a multivariate approach to resource classification which takes into account a number of variables.</li> <li>BRL considers the amount of geological data sufficient to estimate the resource.</li> <li>Uncertainty surrounds historic underground mine workings, both in the quality and quantity of coal extracted, which seam was mined and surveying and spatial location of underground</li> </ul>	

#### Criteria Commentary workings. This uncertainty is reflected in the resource classification. Quaternary gravel deposits overlie the coal measures unconformably over the southern portion of the project area. Some uncertainty surrounds the depth of erosion and the extent of the quaternary deposits. A conservative approach to modelling this Quaternary erosional surface has been used in the model and is reflected within the resource status. **Dimensions** Depth of cover varies from 0m at outcrop to over 200m at the south-eastern boundary of the model. The strike length of the deposit is in excess of 4km. **Estimation** All available and reliable exploration data has been used to create a geological block model for and modelling resource estimation and classification. techniques All exploration drilling data is stored in Acquire and exported into a Maptek Vulcan drillhole database. Mapping data including coal seam thickness and roof/floor points is stored in Acquire and exported into Vulcan. Interpretive data is stored within Vulcan in various layers.

- A horizons definition has been developed and is used in the stratigraphic modelling process.
- Vulcan 11 is used to build the structure model. Grid spacing is 5m x 5m. This spacing was selected to be 1/5 of the minimum data spacing of a targeted area and to model steeply dipping strata more accurately.
- Vulcan's Hybrid method is used to produce the structure model. This method triangulates a
  reference surface and then stacks the remaining horizons by adding structure thickness grids.
  Thickness grids are created using inverse distance. Design data from other horizons is
  incorporated into the final grid structure.
- The maximum triangle length for the reference surface was set to 800m.
- The maximum search radius for inverse distance is 800m. The inverse distance power is set to 2, with maximum samples set to 6.
- Structure grids are checked and validated before being used to construct the resource block model.
- Vulcan 11 is used to build the block model. The process is automated using a Lava script.
- The coal structure surfaces, along with LiDAR topography surface, quaternary unconformity, and opencast mined out surfaces are used to build the block model. The block dimensions are constructed at 5m x 5m. Vertical thickness for coal blocks is 0.25m, whilst overburden blocks have no maximum thickness. The model is rotated at 60° to align with the strike of the coal measure deposits.
- Coal seam existence has been masked by a 0.25m vertical thickness cut-off. No resources are reported for daughter seams of less than 0.25m vertical thickness.
- Quality grids for each daughter seam are built using composited samples for each daughter seam using an inverse distance squared function.
- All seams have a maximum search radius of 500m. If a coal block is not estimated during the grade estimation process the blocks are not reported as resources.
- Quality grids for air-dried ash, sulphur, volatile matter, and inherent moisture and in situ moisture are estimated. Calorific value is calculated from ash on a dry basis.
- Geostatistics of the coal quality dataset has been investigated to examine and define the
  estimation search parameters; however, the results have been poor due to the non-normal
  distribution of the data along strike of the deposit.
- Coal quality grids are built for each seam daughter with the maximum search radius set to 500m.
   The grids are built using the inverse distance function with a power of 2 and maximum samples of 6.
- Various methods have been used to check the validity of the block estimation. This includes
  manual inspection of the model, QQ plots of block model qualities vs the coal quality database
  and other comparison tools.
- Reconciliations of production versus plan are completed quarterly with coal production generally
   5-10% over modelled coal tonnage. Production data on coal quality follows modelled coal quality.
- Resource tonnages within historic underground workings areas have been discounted by an

Criteria	Commentary
	estimated extraction rate. The primary underground mining method utilised historically in Malvern Hills area is bord and pillar mining although some minor hydro mining took place at Nimmo's underground operation in the 1970's but production was limited due to a lack of available water. Where mine plans are available that are sufficiently accurate to define extraction types the following factors are used:  Mining Method  Extraction Rate
	First worked 33% (including crown pillars and access protection pillars)
	Pillars extracted 75%
	Default 50% (areas where workings are known but plans are insufficient to define type)
	Where the mine plans are not of sufficient detail to accurately define extraction methods the
	default rate of 50% is used to discount coal tonnages within worked seams in the model of the
Moisture	<ul> <li>original unmined tonnage.</li> <li>Resource tonnages are reported using natural bed moisture, calculated from air-dried density,</li> </ul>
Moisture	air-dried moisture and in situ moisture using the Preston Sanders equation.
Cut-off	Stratigraphic structure grids have been developed based on a 50% ash cut-off.
parameters	No lower cut-off has been applied. There is an inherent minimum limit to ash samples in modern
	results due to a laboratory lower detection limit of 0.17% (adb).
	Coal resources are reported down to a seam thickness of 0.25m (one block), however all seams
	are masked from the model where modelled structure thickness is less than 0.3m thick(vertical) with an ash cut-off of 25%.
Mining factors	• It is assumed that any future mining operation would have a minimum vertical daughter seam
Or accumptions	thickness of 0.3m as a minimum mining horizon cut-off. The current opencast operation mines
assumptions	some seam splits that are thinner than this.
	<ul> <li>Only coal that falls within an optimised pit shell with revenue factor 0.75 is reported as resources.</li> <li>Costs and revenue parameters used in the pit optimisation are based on the 2018 Canterbury budget and include allowances for royalties, commissions, mining costs, coal processing and</li> </ul>
	administration, and basic mining and processing losses.
	<ul> <li>No other mining factors such as strip ratios, mining losses and dilutions have been applied when developing the resource model, or reporting resource tonnages.</li> </ul>
Metallurgical	No metallurgical assumptions have been applied in estimating the resource.
factors or assumptions	<ul> <li>Currently no wash plant is used at the Canterbury operation. The ROM coal produced is processed through a crushing/screening plant where losses are minimal.</li> </ul>
Environmental factors or assumptions	<ul> <li>Studies for ABA characterisation of overburden, and boron leaching studies have been completed. It is not expected that these will prevent eventual economic extraction of the resource.</li> </ul>
	No other environmental assumptions have been applied in developing the resource model.
	All environmental approvals are currently in place to operate the current section of the mine.
	<ul> <li>Updating of approvals for mine footprint expansion is an ongoing process and it is reasonably expected that any modifications to existing agreements or additional agreements that may be required can be obtained in a timely manner.</li> </ul>
Bulk density	After grade estimation air-dried density is calculated from the air-dried ash value using the ash-
	density relationship derived from the project dataset.
	An in situ density value is then computed using the Preston Saunders method.  In situ mainture determinations have been callested from drill earn plus amples and up weathered.
	• In situ moisture determinations have been collected from drill core ply samples and un-weathered outcrop/trench samples taken from the active pit.
Classification	BRL classifies resources using a multivariate approach.
Olassiii CallOif	<ul> <li>BRL classifies resources using a multivariate approach.</li> <li>Coal resources have been classified on the basis of geological and grade continuity balanced by relative uncertainties surrounding historic underground extraction and proximity to faults and unconformities. The result reflects the Competent Person's view of the deposit.</li> </ul>
	visit appoint

Criteria	Commentary
	<ul> <li>Closely spaced drilling with valid samples increases the confidence for each seam in resource assessments.</li> <li>The confidence is reduced by:         <ul> <li>A block being within an underground worked area due to extraction rate uncertainty.</li> <li>Thin coal, where thickness is 0.5m or less.</li> <li>A block lies below but within 2m of the quaternary unconformable surface.</li> </ul> </li> </ul>
Audits or reviews	A review of the resource model has been carried out by the Competent Person.
Discussion of relative accuracy/confidence	<ul> <li>Statistical comparisons between the resource block model and the coal quality data set have been carried out and are within expected ranges. Some anomalies exist due to non-normal data distribution. Techniques utilised include QQ plots and probability plots.</li> <li>Reconciliations of production versus plan are completed quarterly with coal production generally within 5-10% of the modelled coal tonnage. Production data on coal quality is insufficiently recorded to reconcile modelled coal quality.</li> </ul>

## Section 4 Estimation and Reporting of Ore Reserves

Criteria	Commentary		
Mineral Resource estimate for conversion to Ore Reserves	<ul> <li>A 3D Resource Block model of topography, structure and quality are used for in si definition.</li> <li>Mineral Resources are inclusive of Ore Reserve.</li> </ul>	tu Resource	
Site visits	The Reserves competent person visits the site regularly.		
Study status	<ul> <li>Canterbury Coal is an operating mine project. The reportable Ore Reserve is base of mine (LOM) plan and has determined a mine plan that is technically ach economically viable, and that material modifying factors have been considered.</li> </ul>		
Cut-off parameters	<ul> <li>Pit optimisation runs were completed to determine economic pit limits.</li> <li>BRL supplied cost and revenue data.</li> <li>A maximum ROM ash of 15% (arb) and a minimum coal seam vertical thickness of are applied.</li> </ul>	0.3m vertica	
Mining factors or assumptions	The Canterbury Coal mining area has been operational since approximately 2005, with the current operation starting in 2013. Costs and prices are derived from actual and budget estimations. Hence, a Feasibility Study was not completed.  Mining recovery of 80% is applied to the in situ coal from areas not affected by underground mining. Mining recovery in areas of underground workings are summarised below.		
	Mining Method Extraction Rate (resources)		
	Not worked nil		
	First worked 33% (including crown pillars and access pr pillars)		
	Pillars extracted 75%		
	Default 50% (areas where workings are known buare insufficient to define type)		
	<ul> <li>Periodically, the ROM coal production is reconciled against depletion of the mine Reconciliation to date shows more coal produced than modelled from the same are</li> <li>The Canterbury Coal mine utilises truck and shovel for waste and coal move operations are supported by additional equipment including dozers, graders, and we</li> <li>Geotechnical studies have been completed for Canterbury existing operations and</li> </ul>	eas. vement. The rater carts.	

ongoing requirement for new pits prior to development.

Criteria	Commentary
	<ul> <li>Moisture Adjustments: Moisture is modified during both the mining and processing operations.         In situ moisture is determined by the process described in Section 3 and is the base point for all moisture adjustments. Recoverable Coal Reserves are stated on a ROM moisture basis, as received by the processing plant. Marketable Coal Reserves are stated on a product moisture basis, as sold.     </li> </ul>
Metallurgical factors or assumptions	<ul> <li>The ROM coal produced at Canterbury Coal is crushed and screened on site. A process recovery of 95% is used based on a processing reconciliation study.</li> <li>Product coal specifications include ash, sulphur, moisture and calorific value.</li> </ul>
Environmental	<ul> <li>All environmental approvals are currently in place to operate the current section of the mine.</li> <li>BRL is in the process of seeking approvals to expand the current operations.</li> <li>Waste rock characterisation results show that a portion of the waste material is acid producing, as such it requires special placement requirements and procedures in the dumps.</li> </ul>
Infrastructure	All necessary infrastructure is in place and operational for the current operation.
Costs	<ul> <li>All infrastructure is in place at Canterbury Coal. The primary ongoing capital requirements are for equipment replacement and this is included in the economic model.</li> </ul>
	<ul> <li>All operating costs were based on the 2021 Canterbury Coal budget estimates developed by BRL and include allowances for royalties, commissions, mining costs, road haulage loading and administration.</li> </ul>
	Prices are at the mine gate. Customers are responsible for transport costs.
	<ul> <li>Contracted product specifications and penalties for failure to meet specification are included in the cost model.</li> </ul>
Revenue	BRL uses a weighted average of contracted coal price. These price assumptions are considered
factors	reasonable for the purposes of estimating Reserves.
Market assessment	Long term supply contracts are in place.
Economic	<ul> <li>For JORC Reserves reporting purposes, detailed mine design and schedules are generated.</li> <li>This work includes identifying the mining sequence and equipment requirements.</li> </ul>
	BRL generates detailed cash flow schedules and identifies incremental and sustaining capital.
Social	BRL have key stakeholder agreements in place.
Other	<ul> <li>All mining projects operate in an environment of geological uncertainty. The Competent Person is not aware of any other potential factors, legal, marketing or otherwise, that could affect the operations viability.</li> </ul>
	<ul> <li>The Competent Person understands that the pit shells used as the basis of this Statement are based on extending the operation to the north and south along strike. Updating of approvals is an ongoing process and it is reasonably expected that any modifications to existing agreements or additional agreements that may be required can be obtained in a timely manner.</li> </ul>
Classification	<ul> <li>Classification of Ore Reserves has been derived by considering the Measured and Indicated Resources and the level of mine planning.</li> </ul>
	• For the Canterbury Coal operation, Measured Coal Resources are classified as Proved Coal Reserves and Indicated Resources classified as Probable Coal Reserves, as the mine is currently operating and the level of mine planning adequate.
	The Inferred Coal Resources have been excluded from the Reserve estimates.
Audits or reviews	Internal peer review and reconciliation by BRL of the Reserves estimate has been completed.
Discussion of	Periodically, the ROM coal production is reconciled against depletion of the mining model. To-
relative accuracy/	date more coal has been produced than modelled from the same areas.
confidence	Accuracy and confidence of modifying factors are generally consistent with the current operation.

#### Appendix A:

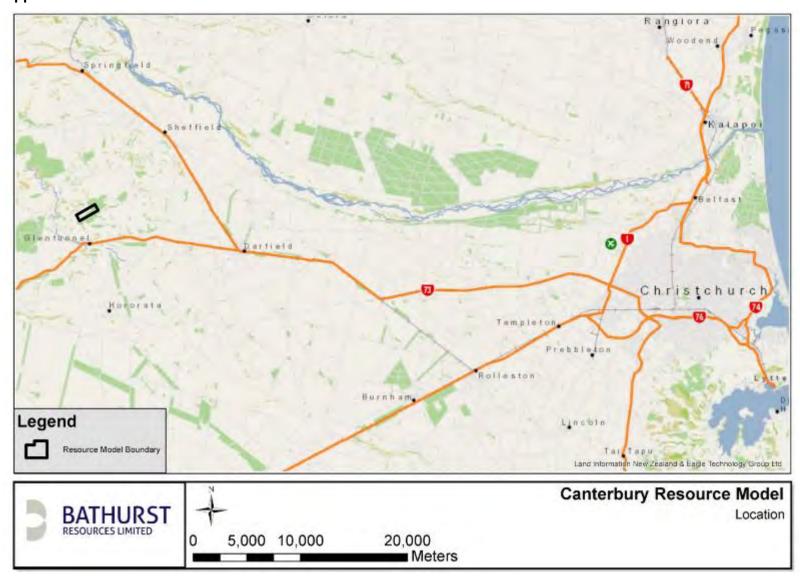


Figure 1: Location plan showing the proximity of the resource model area to regional centres and markets

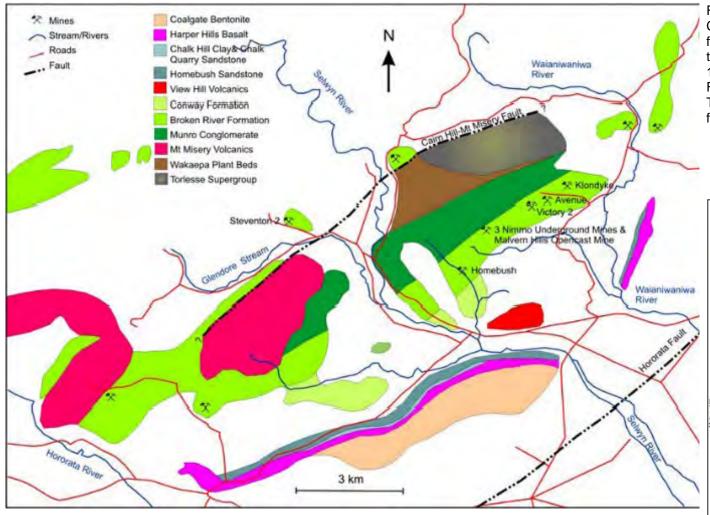
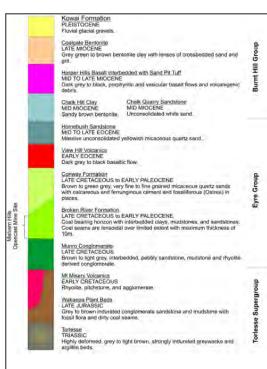


Figure 2: Generalised map of Malvern Hills Coalfield showing geological units and faults with locations of mines noted in the text (from Seale 2006 after Carlson et al., 1980; Duff, 1986; Duff and Barry, 1989; Field and Browne, 1989; Mathews, 1989; Tappenden, 2003. Refer to details below for details of the stratigraphic units)



General geological stratigraphic column for the Malvern Hills coalfield (from Seale 2006).

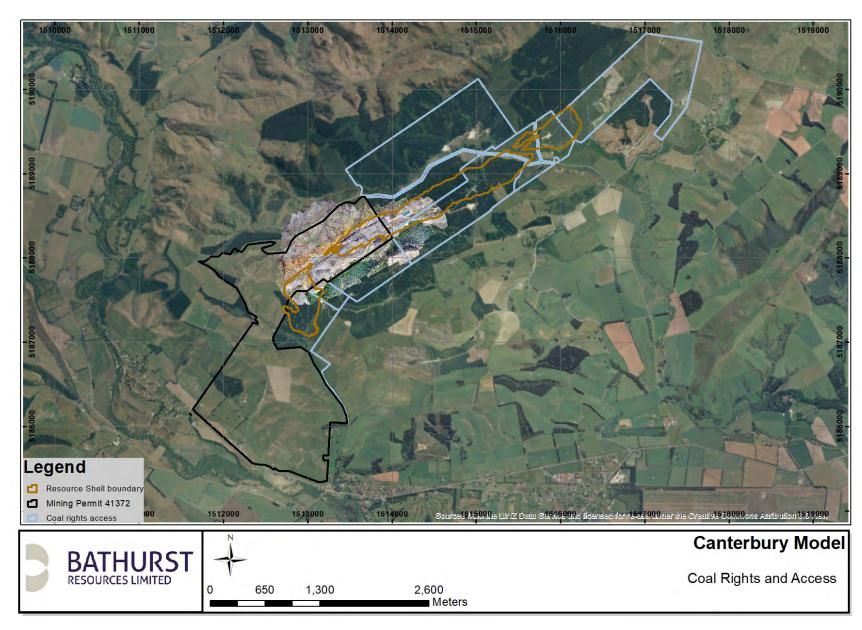


Figure 3: Coal right access

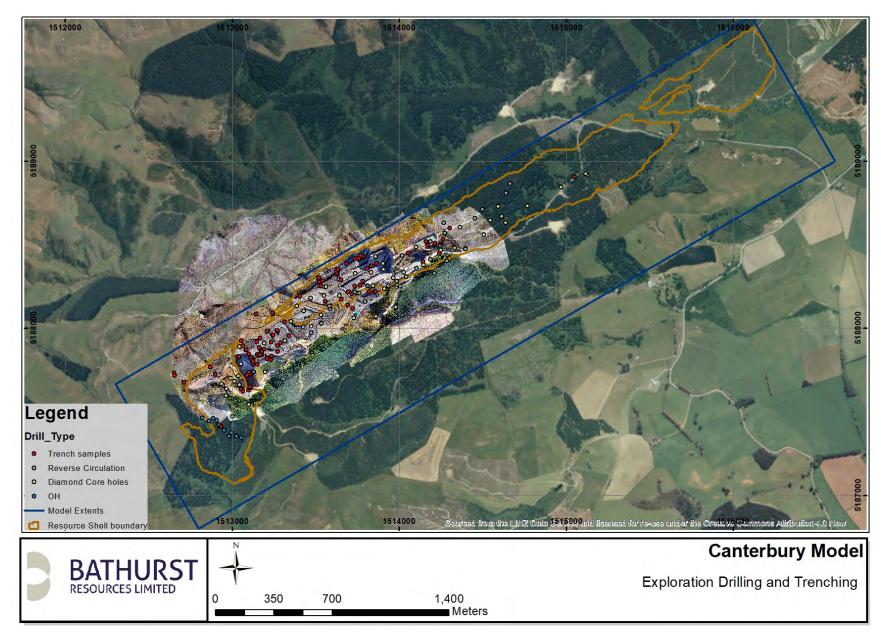


Figure 4: Exploration dataset for the Canterbury project

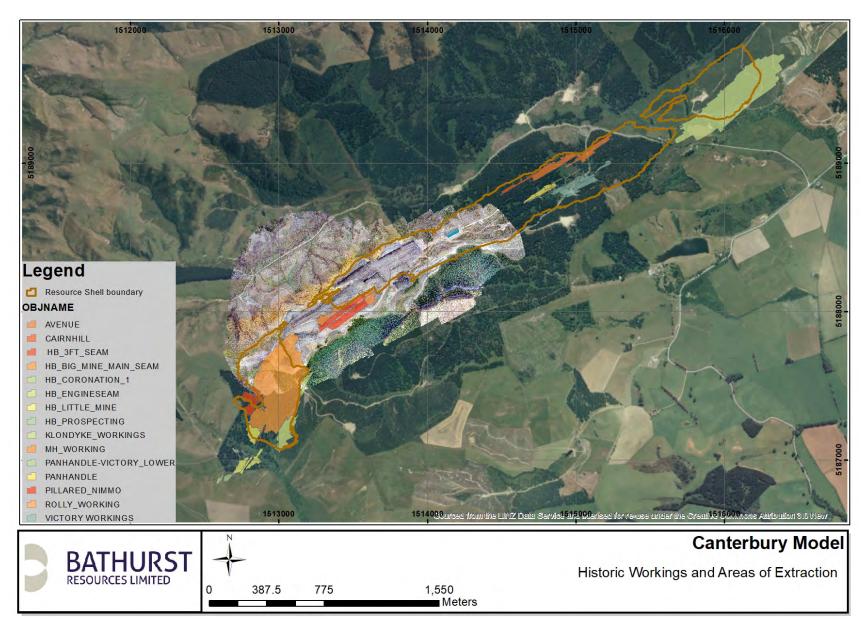


Figure 5: Extent of historic underground coal mines in the project area

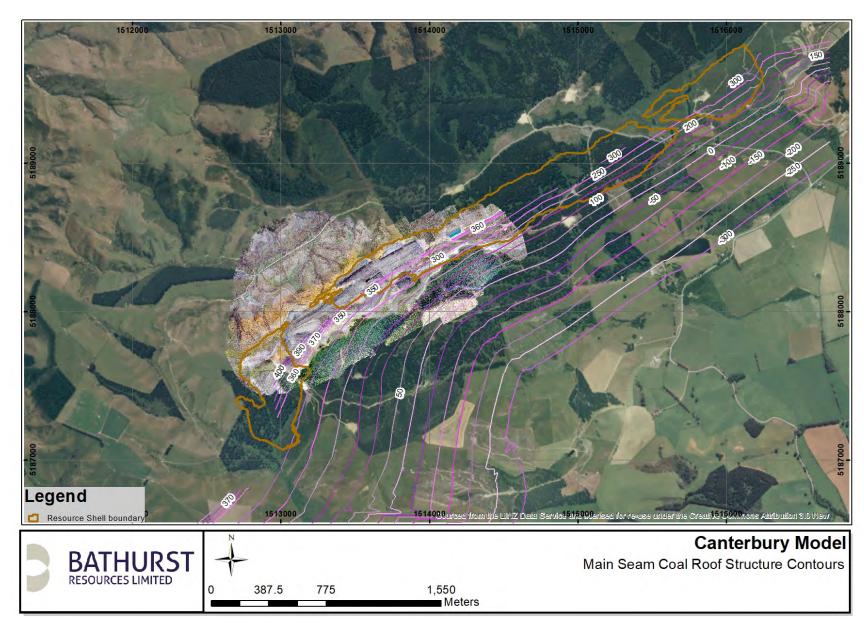


Figure 6: Structure contours of the Main Seam roof

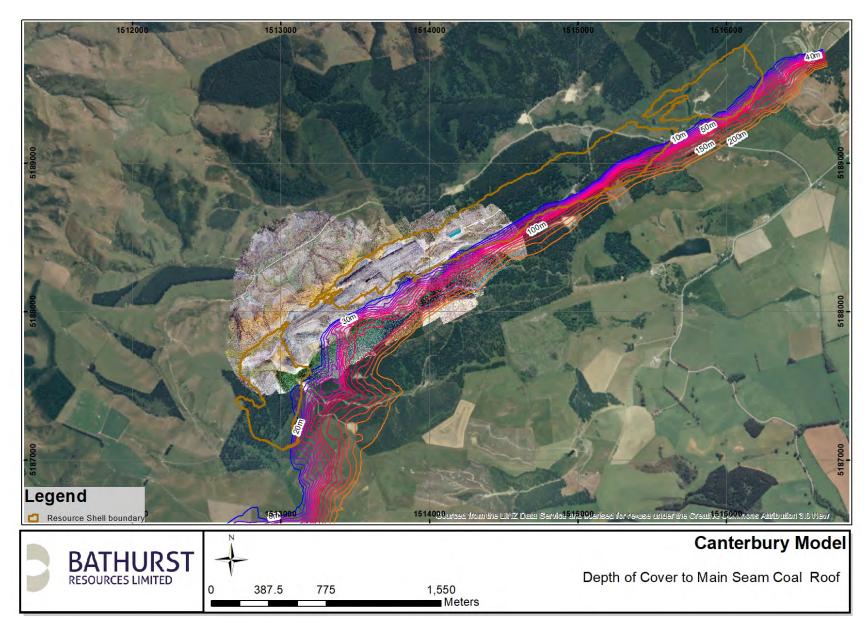


Figure 7: Depth to the Main coal seam roof

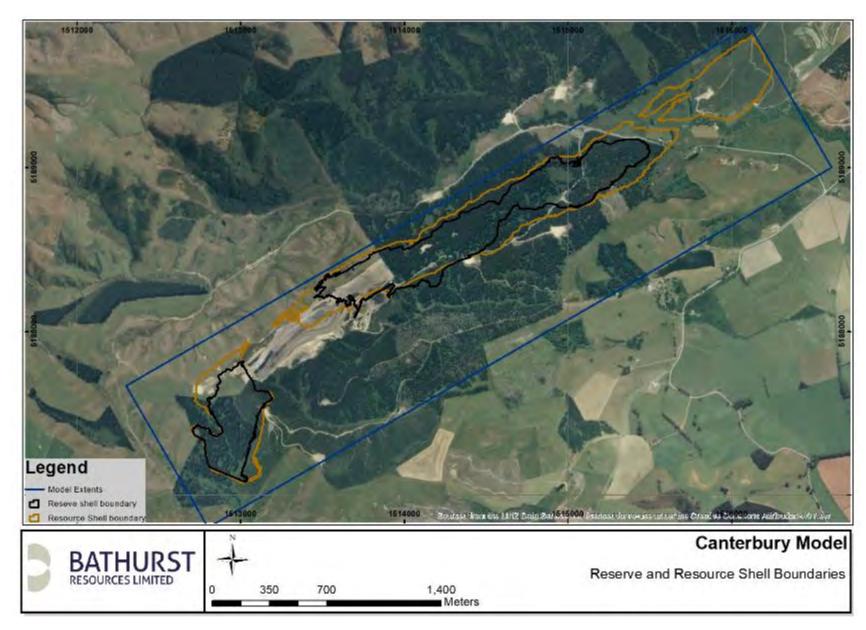


Figure 8: Canterbury Reserve and resource shell boundaries

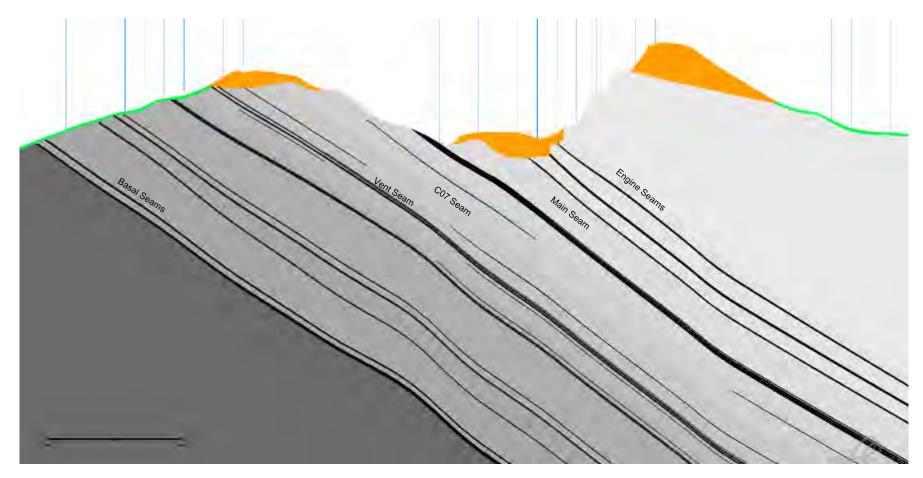


Figure 9: North west facing section through the working seam section at Canterbury Opencast Mine

# JORC Code, 2012 Edition - Table 1 Report for Nightcaps 2020

## Section 1 Sampling Techniques and Data

## Criteria

## Commentary

## Sampling techniques

- Multiple campaigns of data acquisition have been carried out in the Ohai coalfield over the past century.
- A combination of open holed (wash drilled), reverse circulation, and cored drilling techniques has been used. Extensive logged and sampled trenching (channel sampling) has also been employed.
- Modern exploration campaigns include data from 2006:
  - o 38 reverse circulation hammer drillholes.
  - 41 NQ reverse circulation blade drillholes.
  - o 23 wash drilled drillholes.
  - 162 HQ/PQ triple tube diamond cored holes.
  - 272 logged channel samples and trenches.
- Historic drilling includes:
  - 35 holes drilled from 1944 to 1962.
  - o 14 drillholes completed in the 1980's.
  - No down hole geophysics data is available for these holes.
- Recent drilling has aimed to infill areas to improve confidence and to test reliability of historic
  data. Drilling has concentrated on areas deemed closer to production therefore tighter drill
  spacing exists in the Takitimu and Coaldale pits. In 2020 drilling targeted the north west of Black
  Diamond that enabled the area to be upgraded to an indicated resource.
- Down hole geophysics are available for 79 of the modern drillholes.
- Exploration drillholes are ordinarily geophysically logged provided that hole conditions and operational constraints allowed. The standard suite of tools run included density, dip meter, sonic, and natural gamma.
- In rods density produced a reliable trace for use in seam correlation and depth adjustment and
  is used to correlate coal seams, to confirm depths and thickness of coal seams and to validate
  drillers' logs. Geophysics was also used to accurately calculate recovery rates of coal
  intersections.
- RC boreholes drilled in 2009-2010 and in 2020 were geophysically logged for natural gamma with Auslog Model A051 combination natural gamma/single-point resistivity/spontaneous potential sonde, 43mm dia. Calibration method used a gamma test source jig, model P6721.
- Diamond bore holes were geophysically logged for density with a 9034 sidewall density tool. Calibration method used for 9239 was concrete block and water tank
- Outcrop trench and channel samples provide a significant proportion of the sample dataset. Coal seam thickness and partings between seams were measured vertically. Trench data is entered into the drilling database in a form that replicates a drillhole at that location.

## Drilling techniques

- All BRL managed drilling campaigns have utilised the following drilling methods:
  - o Full PQ triple tube core.
  - o Full HQ triple tube core.
  - o Combination wash drill / triple tube core.
  - Reverse circulation 133mm.
- Historic drilling techniques include:
  - HQ triple tube core.
  - Rotary wash, fishtail bit.
- All drillholes (with the exception of three geotechnical drillholes) were collared vertically.
- Channel sampling of faces are utilised extensively in the Nightcaps projects.

## Drill sample recovery

Core recovery was measured by the core logging geologist for each driller's run (usually 1.5m) in each drillhole. If recovery of coal intersections dropped below 90% the drillhole required a redrill.

Criteria	Commentary
	Average total core recovery over the recent drilling campaigns was 91.8% with core recovery of
	coal at 96.9%.
	<ul> <li>Where small intervals of coal were lost, and geophysics indicated strongly that coal was lost, ash values were estimated using the results of overlying and underlying ply samples and the relative</li> </ul>
	response of the down hole density trace.
	<ul> <li>Little recovery data is available for historic drillholes.</li> </ul>
Logging	BRL has developed a standardised core logging procedure and all core logging completed by
999	BRL has followed this standard.
	All modern drill core has been geologically and geotechnically logged by logging geologists under
	the supervision and guidance of experienced exploration and geotechnical geologists.
	Drill core was photographed prior to sampling. Depth metre marks and ply intervals are usually
	noted on core in each photograph.
Cub commisses	Down hole geophysical logs were used to aid core logging and adjust depth where applicable.    Down hole geophysical logs were used to aid core logging and adjust depth where applicable.
Sub-sampling techniques	<ul> <li>For all exploration and resource modeling data acquired by BRL an in-house detailed sampling procedure was used.</li> </ul>
and sample	<ul> <li>Sampling and sample preparation are consistent with international coal sampling methodology.</li> </ul>
preparation	<ul> <li>Drill core ply samples include all coal recovered for the interval of the sample. Core was not cut</li> </ul>
	or halved. Ply sample intervals were generally 0.5m unless dictated by thin split or parting
	thickness. Coal sample size is considered adequate to be representative of the coal seam quality.
	• For historical data, sample preparation processes are unknown. However no historical drillhole
	coal quality results are used in the resource estimation.
	• Trench samples were taken representatively from excavated and cleaned outcrop, preventing
	sampling of weathered coal and other contamination of the sample. Sample intervals were measured vertically and were generally 0.5m or less, however thicker sample intervals of up to
	4m were used for thick coal seams. No field sample duplicates have been taken or analysed.
	Sample sizes generally aim to be at least 1kg of coal per 0.5m sampled.
	All diamond core samples and RC chip samples were collected as soon as practicable after
	drilling and bagged then sent to the SGS New Zealand Limited (SGS) minerals laboratory in
	Ngakawau where they were crushed and split at the laboratory.
	Some grade control drillholes and channel samples have been analysed at the on-site laboratory
	for ash and sulphur using standards in accordance with ISO 17025 requirements for laboratory practices.
Quality of	<ul> <li>SGS has been the predominant accredited laboratory used by BRL for coal quality testing on</li> </ul>
assay data	exploration drillholes used in the resource model.
and laboratory	SGS have used the following standards for their assay test work:
tests	o Proximate analysis (ASTM 7582)
	o Ash (ISO 1171)
	o Volatile Matter (ISO 562)
	<ul><li>Inherent Moisture (ISO 5068)</li><li>Total Sulphur (ASTM 4239)</li></ul>
	o Calorific Value (ISO 1928)
	o Loss on Drying (ISO 13909-4)
	o Relative Density (AS 1038.21.1.1)
	CRL Energy Ltd completed much of the assay test work for samples collected prior to BRL taking
	over the projects.
	CRL used the following standards for their test work:
	Inherent Moisture (ISO 117221)
	Ash (ISO 1171) Volatile Matter (ISO 562)
	Calorific Value (ISO 1928)
	Both SGS and CRL are IANZ accredited laboratories.
	All analysis was carried out and reported on an air-dried basis unless stated otherwise.
	Some coal quality testing completed for BRL on in pit channel samples and grade control
	drillholes used in the resource model has been carried out by the onsite laboratory which uses

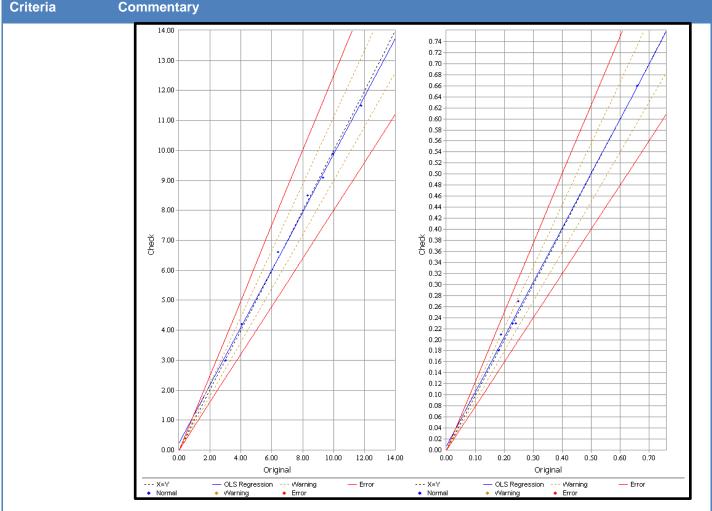
### Commentary

the following standards in accordance with ISO 17025 requirements laboratory practices:

- Sample preparation is carried out as per ISO 5063/2 brown coal and lignite's Principles
  of sampling.
- All coal is crushed to -3mm and a minimum of 650 grams of coal is extracted using a rotary divider.
- o Coal is dried, the loss on air drying determined and ground to -212 microns in a ring mill.
- Coal is representatively spot sampled into a lab sample bottle and is then tested for inherent moisture, ash and sulphur.
- o LOD carried out as per ISO 5068-1.
- o Inherent moisture is carried out using the ISO 5068-2.
- o Ash has been analysed using the standard ISO 1171-1997.
- Duplicate results from the onsite lab are compared to results tested at SGS; results are
  comparable between the two labs, however some differences between inherent and total
  moisture has been observed. No moisture results from the onsite lab are used for resource
  estimation however ash and sulphur (ad) results from three grade control drillholes and 72
  channel samples are used in the grade estimation.
- SGS has reviewed onsite sampling and calibration procedures in 2013 as per the initial setup of the lab in 2009. Periodic reviews and audits are completed every six months by an external party.
- Onsite coal sampling procedures have been audited and tested by consultant Trevor Daly Consulting in 2010, 2013 and again in 2016 and more recently in 2019 by SGS.

## Verification of sampling and assaying

- Sample assay results have been cross referenced and compared against lithology logs and downhole geophysics data. Results are also inspected by experienced geologists and compared with expected values utilising known coal quality relationships for the Nightcaps coalfield.
- Anomalous assay results were investigated, and where necessary the laboratory was contacted and a reanalysis undertaken from sample residue.
- Six twinned holes have been drilled at the project, but no field duplicate trench samples have been taken.
- In pit channel samples have been conducted for grade control purposes; these have been used
  to cross validate historic and RC drilling and to provide an increased density of coal quality data
  for model estimation around active mining areas.
- Laboratory data is imported directly into an Acquire database with no manual data entry at either the laboratory or at BRL.
- Geophysical data has been used to establish coal seam thickness and depths on the margins of coal seams in RC drillholes where sampling uncertainty inherent in RC drilling made coal sample and intersection depths less reliable.
- In 2014 BRL commissioned a series of duplicate samples to be completed by CRL Energy Ltd. These samples have repeated tests performed by SGS on a subset of ply samples selected at random. The results are shown in Figure 1.



## Figure 1: Air-dried Ash (ash ad) (left) and Sulphur (right) duplicate results comparing SGS and CRL laboratories.

## Location of data points

- The site currently uses the Bluff Circuit 1949 Geodetic Datum.
- LiDAR and digital imagery were acquired on 10 April 2013 using an Optech M200 LiDAR system and CS8900 medium format digital camera.
- The data was collected flying 1,300m above the lowest ground and using a scanner field of view of 44°. Outgoing pulse rate was set at 70kHz and minor scan frequency 33.5 Hz.
- The topographic surface used to build the model is derived from a combination of LiDAR data, and LINZ topographical data where LiDAR coverage in outer areas is unavailable. The topographic surface is updated with end of month mine surveys for active mining and dumping areas.
- The Takitimu mine has had its own survey ability since 2014 and exploration data is surveyed by qualified surveyors combined with in-house trained surveyors and survey technicians. Prior to 2014 surveying was completed by BTW South based in Cromwell.
- EOM surveys surveyed by aerial trained and qualified BRL staff.
- All in-pit surveying of coal roof and floor and channel samples has been conducted by sufficiently trained BRL staff.
- Historic data has been converted from various local circuits and map grids to the Bluff Circuit 1949 Geodetic Datum.
- Surveyed elevations of drillhole collars are validated against the LiDAR topography and EOM survey surfaces.

## Data spacing and distribution

- Spacing for the Nightcaps project, including Black Diamond, Coaldale and Takitimu project areas, has been calculated by finding the radius required to fill the total area of the project divided by number of drillholes within that area.
- The project has an average drillhole spacing of 132m. Channel sampling reduces this average spacing to 91m.

## Criteria Commentary Drillhole spacing is not the only measurement used by BRL to establish the degree of resource uncertainty and therefore the resource classification. BRL uses a multivariate approach to resource classification which is explained further in Section 3. The current drillhole spacing is deemed sufficient for coal seam correlation purposes. Geostatistics have been applied to the Nightcaps dataset. Variography results have been applied to grade estimation search parameters. The samples database is composited to 0.5m sample length prior to grade estimation. Any samples with composited length of less than 0.1m are not included in the estimation. Compositing starts at the top of seam and small samples are not distributed or merged. Orientation of All recent exploration drilling has been completed at a vertical orientation. The exception to this data in is three diamond drillholes that have been drilled with a dip of 45° and azimuth of 286. These relation to holes were drilled to assess the geotechnical properties of the western Coaldale highwall and geological were intended to intersect a fault. structure All historic drillholes are vertical; those without deviation plots are assumed to be vertical. Any deviation from the vertical is not expected to have a material effect on geological understanding due to the shallow nature of project. Average drillhole depth in the dataset is 47.7m with the deepest coal intersection of 86.4m. The majority of the deposit presents a shallow seam dip between 3° - 15° although some localised steep dips do exist near fault margins. Vertical drilling is considered to be the most suitable drilling method of assessing the coal resource in the Nightcaps coalfields. Sample Stringent sample preparation and handling procedures have been followed by BRL. Ply samples security are taken and recorded from drill core, sealed in plastic and sent directly to the laboratory. It is not considered likely that individual coal samples face a risk of theft or sabotage as coal is a bulk commodity with little value for small volumes of coal from drill core. Audits or BRL has reviewed the geological data available and considers the data used to produce the reviews resource model is reliable and suitable for the purposes of generating a reliable resource estimate. Senior geologists undertake audits of the sample collection and analysis processes.

## Section 2 Reporting of Exploration Results

Mineral tenement and land tenure status	Coal rights attached that are wholly owned by Dathurst Coal Etd.				260 when it rtion of the
	Permit/Rights	Operation	Mining Type	Expiry	,
	Exploration Permit Application	Ohai	N/A	N/A	
	Mining Permit 53614	Coaldale	Opencast	04 Jun 2032	
	Private Coal	Coaldale/Takitimu	N/A	N/A	
	Lot 1 DP 4505				
	Royalties are paid to the Cro Levy is paid to the Crown on			0,	Resources

of the New Brighton EP 40625 as announced in March 2015.

A deferred consideration payment of 5% of gross sales revenue at mine gate is payable on all coal produced by the company in the Ohai area. The deferred consideration is for the acquisition

## Commentary

- BRL owns a portion of the Coaldale resources as coal rights attached to the land title.
- An access arrangement (AA) is in place to access a small parcel of private land in the southern portion of MP53614. There are no royalty payments included as part of this agreement.
- An AA is in place to access parcels of private land in the north eastern portion of MP53614.
   There are royalty payments included as part of this agreement. The royalty is adjusted to the PPI and LCI price indices.
- BRL owns the remaining area at the Black Diamond pit.
- BRL has a lease agreement with the Southland District Council over a large land parcel covering
  the Takitimu project and mine infrastructure. The lease includes rights to explore for, extract and
  sell coal from within the parcel.
- Figure 9 and Figure 10 in the Appendix show BRL's land ownership and access, and mineral rights within the project area.

# Exploration done by other parties

- All exploration later than 2011 has been carried out by BRL.
- Prior to BRL-managed exploration, modern exploration was conducted by CRL for Takitimu Coal Limited prior to the purchase by BRL.
- Historic data has been traced back to original reports and logs held at Archives NZ storage centres. Historical data has been thoroughly investigated for reliability and quality and, where the integrity of the data is limited, it has been omitted from the model.

## Geology

- The project is located in the Ohai coalfield, New Zealand.
- The Ohai coalfield is a fault bounded basin containing Cretaceous sub-bituminous coal.
- The defined resource is contained within the Morley and Beaumont formations.
- The Cretaceous Ohai group contains three formations the Wairio, New Brighton and the Morley Formations.
- The Eocene Nightcaps group contains two formations the Beaumont and Orauea Formations.
- The two groups are separated by an unconformity, clearly distinguishable by micro-flora.
- The majority of production has come from seams in the Morley Formation which tend to have higher quality coal. Coal seams are faulted and folded into complex structures. Coal thickness and extent varies as seams are often lenticular and split or washed out by fluvial sand channels and syndepositional faulting and folding are indicated.
- Morley coal measures of the Ohai Group have a combined vertical seam thickness which averages 4.1m however 23m thick seams have been recorded.
- Coal ranks range from sub-bituminous A to high volatile bituminous C.
- Beaumont coal measures of the Nightcaps Group have a combined vertical seam thickness which averages 1.4m however 7m thick seams have been recorded. Coal ranks from sub bituminous C-B rank.
- The Nightcaps Group Beaumont Formation coal measures are conformably overlain by Eocene Orauea Formation mudstone.

## Drillhole Information

Table 1: Showing summary of drilling data available within the model area.

Years	Agency	Range of Collar ID	# Holes	Drilling Method	# Holes in structure model	# Holes in quality model	Geophysi cs Available
1944-1947	Various	d133 - d144	9	unknown	3	0	0
~1955	Various	236-245, 247-250, 255, 372, 376	17	unknown	13	0	0
1962	Black Diamond Colleries	280A - 285A	6	WD	6	0	0
1981 - 1984	Coal and Energy NZ Ltd	SC101 - SC111	11	Wash drilled, core	10	10	0
1989	Downer Mining	DMDH01 - DMDH03	3	Wash drilled	0	0	0
2006	Takitimu Coal Ltd	NC001 - NC012	14	HQ triple tube, OH	12	7	14
2007	Takitimu Coal Ltd	T001	1	Trench	1	0	0
Mar 2009	Takitimu Coal Ltd	NC013 - NC027	15	HQ triple tube, RC	15	15	11

Criteria	Commentary								
					hammer, RC blade				
	Feb 2010	Takitimu Coal Ltd	NC028 - NC044	17	RC hammer	16	12	16	
	2010	Takitimu Coal Ltd	T002 - T004	3	Trench	2	0	0	
	Aug 2010 - Sep 2010	Takitimu Coal Ltd	NC045 - NC060	16	Triple tube core, OH, RC hammer	11	9	8	
	2012 - 2014	Takitimu Coal Ltd	NC061 - NC078, NC086 - NC117	50	triple tube core, Open holed	48	29	13	
	2013	Takitimu Coal Ltd	T005 - T011	7	Trench	7	3	0	
	2013 - 2014	Takitimu Coal Ltd	CS001 - CS107	107	Trench	93	86	0	
	2015	Takitimu Coal Ltd	BKDT001 - BKDT043	43	Trench	11	6	0	
	2014 - 2020	Takitimu Coal Ltd	CS107- CS222	103	Trench	102	78	0	
	2015 - 2020	Takitimu Coal Ltd	NC130- NC263	114	triple tube core	92	87	14	
	•	ion drilling results		•					
		usion of detailed on the report of the repor	•	ta from th	is report is	considered	d to not be	material to	the
Data aggregation methods	<ul> <li>Length a</li> </ul>	ninal cut-off for asl and density weight e estimation.							

- The resource model is built as a block model with 0.5m block thicknesses for coal. Coal ply data is used to grade estimate the block model.
- Some coal composite samples for full seam minable sections have been taken for thorough analysis including ash constituents, forms of sulphur, ash fusion temperatures, and ultimate analysis. These composite samples are not used in grade estimation.

## Relationship between mineralisation widths and intercept lengths

All exploration drillholes have been drilled vertically and the coal seams are generally gently dipping. Therefore, any reported seam intercept thickness is representative of the true seam thickness.

### **Diagrams**

- Diagrams can be found in the Appendix A for each of the following:
  - Location map
  - Map showing coal ownership rights
  - Map showing access arrangement and land ownership status 0
  - Map showing resource model prospect areas 0
  - Map showing drilling and major faults 0
  - Map showing historic mine workings
  - Map showing Beaumont Formation coal seam floor contours
  - Map showing Beaumont Formation full seam cumulative thickness isopachs
  - Map showing Beaumont Formation full seam ash isopachs 0
  - Map showing Beaumont Formation full seam calorific value isopachs 0
  - Map showing Beaumont Formation full seam Sulphur isopachs
  - Map showing Morley Formation coal seam floor contours
  - Map showing Morley Formation full seam cumulative coal thickness isopachs
  - Map showing Morley Formation full seam air dried ash isopachs
  - Map showing Morley Formation full seam air dried calorific value isopachs 0
  - Map showing Morley Formation full seam air dried Sulphur isopachs 0
  - Map showing cross section view through the deposit 0
  - Plan showing the cross section through A-A'.

Criteria	Commentary
Balanced reporting	Not applicable. Detailed exploration drilling results and coal intersections has not been reported.
Other substantive exploration data	<ul> <li>Exploration drilling results have not been reported in detail.</li> <li>The Black Diamond pits is in commercial production. The Coaldale area is mostly mined out and is currently being backfilled</li> <li>Substantial ash constituent data has been compiled on coal samples and coal composite samples for the Coaldale and Black Diamond prospects.</li> </ul>
Further work	<ul> <li>Further infill drilling and geotechnical drilling is planned on the southern edge of the previously mined Takitimu pit.</li> </ul>

## Section 3 Estimation and Reporting of Mineral Resources

Criteria	Commentary
Database integrity	<ul> <li>All historic and legacy datasets have been thoroughly checked and validated against original logs and results tables. Where reliability of the data is poor the data is excluded from the modelling process.</li> <li>BRL utilises an Acquire database to store and maintain its geological exploration dataset.</li> <li>An Acquire database places explicit controls on certain data fields as they are entered or imported into the database such as overlapping intervals, coincident samples, illegal sample values and standardised look-up tables for logging codes etc.</li> <li>Manual data entry of assay results is not required as results are imported directly.</li> <li>The database is automatically backed up on an offsite server.</li> </ul>
Site visits	<ul> <li>Hamish McLauchlan (the Competent Person) has worked for the past 20 years on coal projects throughout New Zealand. The Competent Person visits the sites regularly.</li> </ul>
Geological interpretation	<ul> <li>BRL has confidence in the geological model and the interpretation of the available data. Confidence varies for different areas and this is reflected by the resource classification.</li> <li>Dry, mineral matter and sulphur free volatile matter is the principal quality used to differentiate and correlate Beaumont and Morley coal seams.</li> <li>BRL considers the amount of geological data sufficient to estimate the resource however an increased data density may increase confidence of some areas.</li> <li>Uncertainty surrounds the historic underground and opencast workings, both in the quality and quantity of coal extracted and the surveying of underground workings. This is reflected in the resource classification.</li> <li>Some residual uncertainty of quality and confidence of historic drilling data remains despite thorough evaluation of the historic logs and drill locations.</li> </ul>
Dimensions	<ul> <li>A number of coal seams are present with two main seams in the Beaumont formation and up to four in the Morley formation. The total combined coal thickness varies from less than 1m thick up to 25m thickness locally.</li> <li>The model covers a 2.4km by 3.6km area. The deposit consisting of the Takitimu, Coaldale and Black Diamond prospects covers an area approximately 230Ha. The deposit is bounded by the Nightcaps fault to the north east and the Fern fault to the north west. The Takitimu deposit is separated from the Coaldale and Black Diamond deposits by the Trig E fault.</li> </ul>
Estimation and modelling techniques	<ul> <li>All available and reliable exploration data has been used to create a geological block model which has been used for resource estimation and classification.</li> <li>All exploration data is stored in Acquire and exported into a Vulcan drillhole database. Mapping data is stored in Acquire and is exported into Vulcan.</li> <li>Interpretive design data is stored within Vulcan in various layers.</li> <li>Due to the model having two unconformable coal bearing formations the model is subdivided into two separate domains for formation (Morley and Beaumont). The Morley seams are truncated by the overlying unconformable Beaumont coal measures.</li> <li>The model is domained further into four fault blocks (Basement, Black Diamond, Coaldale and South) using the large Trig E Black Diamond, Fern, and the Tinker/Nightcaps faults as bounding surfaces.</li> </ul>

### Commentary

- Each domain is modelled for structure and grade separately.
- Vulcan is used to build the structure model. Grid spacing is 10m x 10m.
- Maptek's Integrated Stratigraphic Modeler module is used to produce the structure model. The stacking method is used which triangulates a reference surface and then stacks the remaining horizons by adding structure thickness using triangulation.
- Structure grids are checked and validated before being used to construct the resource block model.
- Vulcan is used to build the block model and to grade estimate. The process is automated using a Lava script.
- The stratigraphic structure grids for each domain, along with end of month site survey combined with LiDAR topography surface, Beaumont unconformity surface, and other mining related surfaces for Coaldale and Takitimu were used to build the block model. The block dimensions are constructed at 10m x 10m. Vertical thickness for coal blocks is 0.5m.
- Grade estimation is performed utilising Vulcan's Tetra Projection Model. Beaumont seams and
  Morley seams are estimated in the three fault domains. Proximate and sulphur coal qualities are
  estimated on an air-dried basis. Ash, moisture, volatile matter, and are estimated simultaneously.
  Calorific value is estimated on a dry ash free basis (DAF) and converted to an air-dried basis
  based on the block ash and moisture estimates. This enables changes in coal rank across the
  area to be accurately modeled.
- Sulphur is estimated using a different search ellipse as indicated by geostatistics. Variability in sulphur may be related to post depositional fluid flow in NE-SW trending fault structures. Sulphur is shown to be elevated in close proximity to these fault zones.
- Geostatistics of the coal quality dataset has been examined to determine any spatial relationships and define the estimation search parameters for each coal seam quality and thickness. The maximum search radius is set to the maximum range of influence found in the semi-variogram for ash dependent variables and for sulphur.
- Grade estimation is computed using an inverse distance cubed function for ash dependent qualities, and inverse distance squared function for sulphur.
- Various methods have been used to check the validity of the block estimation. This includes manual inspection of the model, QQ plots of the model qualities vs coal quality database and other comparison tools.
- Mining reconciliation has been completed on the resource model to check model accuracy within
  the mining area. To date the results are within the bounds of expected variability based on
  resource classification used with mining factors applied. No other bulk reconciliation has been
  completed.
- Resource tonnages within the model have been discounted where the resource falls within
  historic underground workings areas. The primary underground mining method utilised
  historically in the Nightcaps area is bord and pillar mining. Extraction rates using this type of
  mining generally reduce as seam thickness increases. Historic extraction rates are estimated
  using old mining extraction reports, and work completed by Yardley et al. 1986.



### Commentary

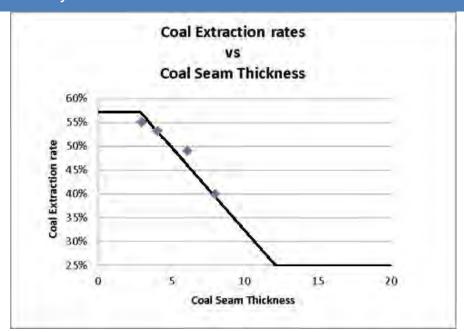


Figure 2: Historic underground extraction rates applied to areas of underground workings based on coal seam thickness

- Opencast mining was also undertaken in the Nightcaps project.
- The extraction rates used to discount coal tonnages in the resource model are as follows:

Mining Method	Extraction Rate
Underground workings	Morley coal discounted at rate shown in
	Figure 2 with a minimum rate of 25%
	extracted.
	Beaumont coal discounted by 10% due to
	collapsed ground.
Opencast	100% of all coal seams

- Reconciliation data from the Takitimu pit supports these extraction rates on a medium to long term basis.
- No acid mine drainage occurs at the Coaldale and Takitimu operations due the nonacid forming lacustrine depositional environment of the coal measures and therefore acid generation models have not been completed.

## Moisture

- Moisture, both on an air-dried and total moisture basis, is estimated into the resource model from
  the sample database after using a cut-off envelope to cut samples that vary excessively from the
  norm. Natural variability in bed moisture is amplified by excessive variability in the sampling
  process and laboratory testing methods.
- The cut-off envelope used was derived from ±0.67 times the standard deviation of the dataset. The diagrams below show the envelope used for Morley and Beaumont coal.



### Commentary

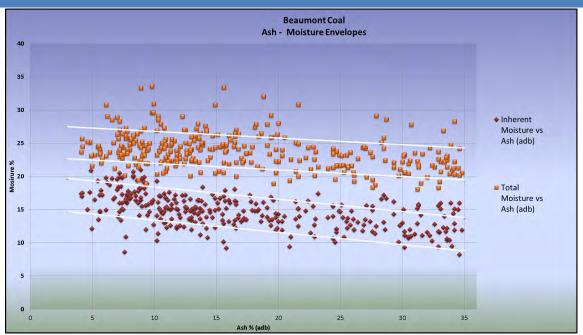


Figure 3: Inherent moisture and total moisture cut-off envelopes for Beaumont coal

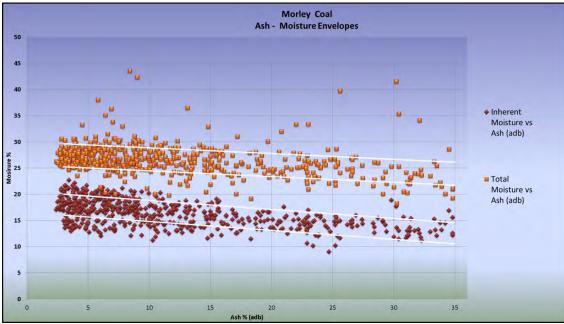


Figure 4: Inherent moisture and total moisture cut-off envelopes for Morley coal.

- This technique compares favourably to the Run of Mine coal sampling data from Coaldale and Takitimu open pit operations and provides a more accurate representation of coal bed moisture than using a single value for total moisture across the deposit and estimating qualities on a dry basis.
- Resource tonnages are reported using natural bed moisture, calculated using the Preston Sanders equation.

## Cut-off parameters

- Structure grids have been developed based on a 35% ash cut-off. Some higher ash intervals are retained within the coal quality dataset to allow simplification of the seam model.
- No lower ash cut-off has been applied.
- Moisture data has an upper and lower cut-off applied as described in the previous section.
- Coal resources are reported down to a seam thickness of 0.5m (one block) with an ash cut-off of 25%
- Resources have been defined as economic by using a Lerchs-Grossman optimised pit shell
  using budgeted mining costs and contracted coal sales values. No resources have been reported

Criteria	Commentary
	outside of this pit shell.
Mining factors or assumptions	<ul> <li>The Coaldale and Black Diamond pits are in commercial production utilising truck and excavator mining.</li> <li>Long term coal sales contracts are tied to inflation (Labour Cost Index, Producers Price Index) for the mining industry.</li> <li>No other mining factors such as mining losses and dilutions have been applied when developing the resource model.</li> </ul>
Metallurgical factors or assumptions	No metallurgical assumptions have been applied in estimating the resource.
Environmental factors or assumptions	<ul> <li>No environmental assumptions have been applied in developing the resource model.</li> <li>The Coaldale and Black Diamond pits are currently in commercial production and there is a large area available for waste disposal.</li> <li>Overburden has been shown not to be acid forming.</li> </ul>
Bulk density	A total of 89 relative density (air-dried) sample results are available for the Morley coal, and 38 samples are available for Beaumont coal.

- samples are available for Beaumont coal.
- The samples are distributed throughout the Takitimu-Coaldale-Black Diamond project area and the sample set covers a range of ash values from 3.8% to 50.3%.
- From this dataset an ash-density curve was generated with a coefficient of determination of R<sup>2</sup>=0.87 for Morley Coal, and R<sup>2</sup>=0.94 for Beaumont coal.

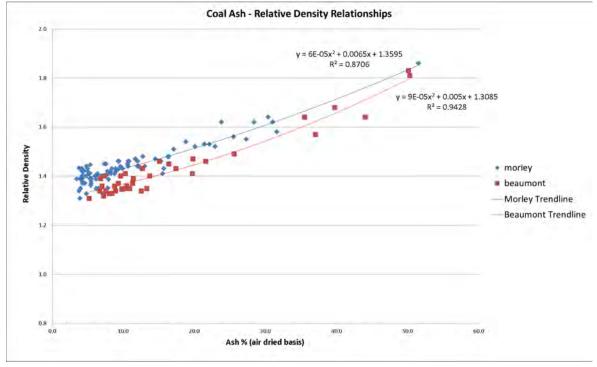


Figure 5: Graph showing Ash (ad) - Relative Density (ad) relationship for both Morley and Beaumont coal

Air dried density is calculated using the air-dried block ash value and the derived density equations.

Morley coal: Density (ad) =  $(0.00006 * ash^2) + (0.0065 * ash) + 1.3595$ Beaumont coal: Density (ad) =  $(0.00009 * ash^2) + (0.005 * ash) + 1.3085$ 

An in situ bulk density value is computed using the Preston Saunders method;

Density (ps) =  $(RD * (100 - mo_ad)) / (100 + RD*(mo_ar - mo_ad) - mo_ar)$ 

Where RD is relative density on an air-dried basis, mo\_ad is inherent moisture, and mo\_ar is total bed moisture.

The Coaldale and Black Diamond pits are in commercial production and reconciliations have confirmed density estimates.

## Classification

BRL classifies resources using a multivariate approach.

### Commentary

- Coal resources have been classified on the basis of geological and grade continuity balanced by relative uncertainties surrounding historic underground extraction, historic fire-affected areas and proximity to faults and unconformities.
- Closely spaced drillholes with valid coal quality samples (point of observation) increases the confidence in resource assessments.
- The confidence is reduced by:
  - A block being within an area of historic underground workings due to extraction rate uncertainty.
  - A block being within 20m of historic underground workings due to uncertainty with historic survey of the workings and georeferencing of mine plans.
  - A block lying in an area where structure dip is greater than 20° due to proximity to large faults. Faulting can impact coal thickness and quality.
  - A block lying within an area with thin or splitting seams resulting in uncertainty of geological continuity. Where a seam is thin or is splitting, a small change in thickness can have a large impact to reported vs actual coal tonnages and qualities.
  - A block being within an area close to a possible 'washout' or erosion of Morley coal as indicated by historic underground mine plans and extents.
  - A block lying within an area identified to be affected by historic underground mine fires.
  - A block underlies the modelled regional unconformity between Beaumont and Morley formations by less than 2m due to uncertainties in unconformity surface topology.
- Essentially, in an area that is not affected by the above conditions, a distance to nearest sample
  of less than 75m would be classified as Measured, less than 150m is classified as Indicated and
  less than 500m would be classified as Inferred.
- The following figures show the resource classification polygons for Morley and Beaumont Coal.
   Economic resources are reported from within these polygons provided they lie within the Lerchs-Grossman optimised opencast pit shell.

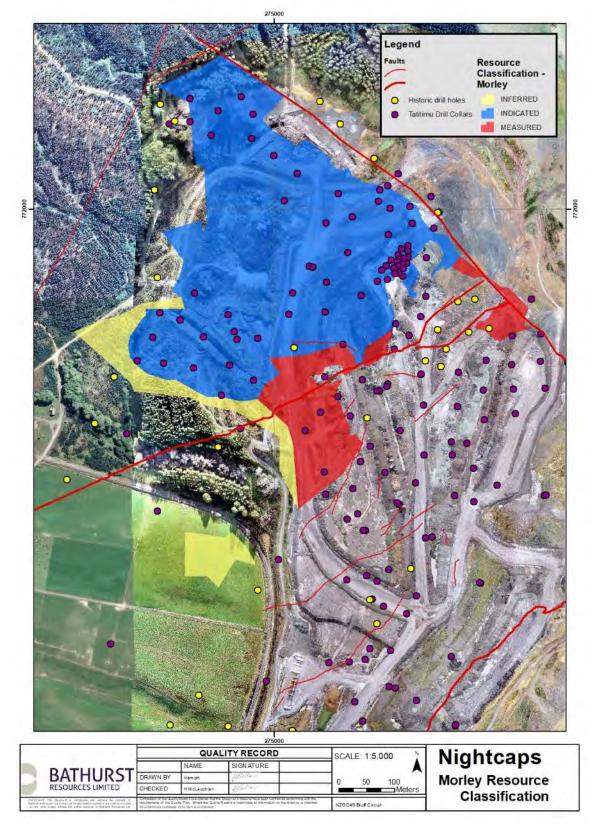


Figure 6: Morley Coal Resource Classification Areas

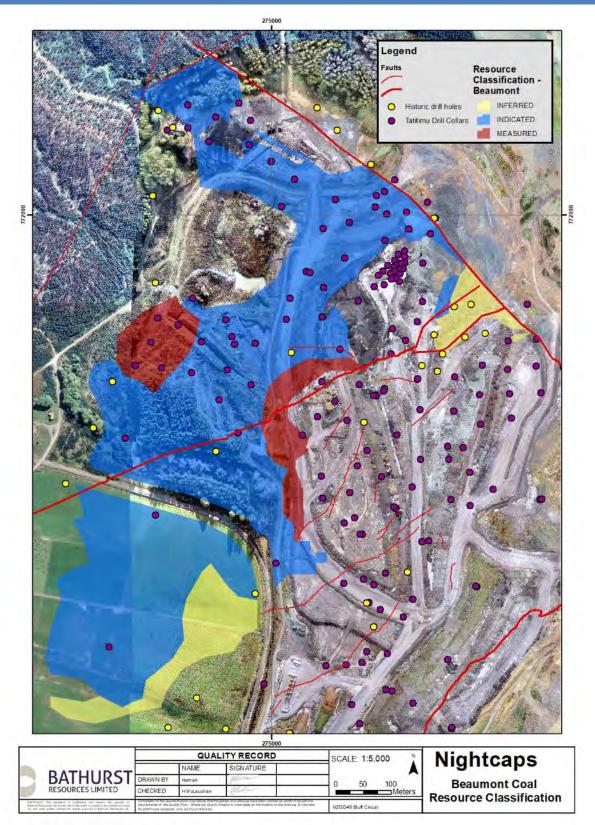


Figure 7: Beaumont Coal Resource Classification areas

## Audits or reviews

- A comprehensive internal review of the resource model has been carried out by BRL.
- The model has been thoroughly reviewed by BRL mine planners and Core Mining Consultants as part of the mine planning for the Coaldale and Black Diamond pits.
- The 2020 Resource Model represents an update to the 2019 Resource Models and incorporates all the drilling and exploration data to 30 June 2020.

## Discussion of relative

The Competent Person has reviewed the resource estimates and has visited the existing operations. The Competent Person has examined the methodology used to estimate the

Criteria	Commentary
accuracy/ confidence	resources and reserves and is satisfied that the processes have been properly conducted. The estimation methodology is generally in accordance with, if not at a higher standard to, industry practice and the estimates can be regarded as consistent with the standards of JORC 2012.  • Statistical comparisons between the resource block model and the coal quality data set have been carried out and are within expected ranges.  • The Takitimu mine utilises the resource model modified to a reserve model for mine planning and scheduling. Production reconciliation for the four years of Coaldale production completed in July 2017 shows that ROM coal produced reconciles to within 10% of the expected coal resources defined by the model. Classification of mined coal in this period was split evenly between Measured and Indicated coal.

## Section 4 Estimation and Reporting of Ore Reserves

Criteria	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul> <li>A 3D Resource Block model of topography, structure and quality are used for in situ Resource definition.</li> <li>Mineral Resources are inclusive of Ore Reserve.</li> </ul>
Site visits	The Reserves Competent Person visits the site regularly.
Study status	<ul> <li>Takitimu 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> <li>Pit optimisation runs were completed to determine economic pit limits.</li> <li>BRL supplied cost and revenue data.</li> <li>A maximum ROM ash of 15% (arb) and a minimum coal thickness of 0.5m are applied.</li> </ul>
Mining factors or assumptions	<ul> <li>The Takitimu mining area has been operational since 2007, with the current Coaldale pit starting in 2012. Costs and prices are derived from actual and budget. Hence, a Feasibility Study was not completed.</li> <li>In 2018 a significant review of Mining recovery factors was undertaken. Allowance was made in the reserves for coal to be contract washed offsite at the Ohai coal plant. Variable clean coal recovery factors were estimated for sections of the remaining Coaldale and Black Diamond areas. Recovery factors were based on the presence of coal workings and the presence of Beaumont sediment intrusions into Morley coal seams.</li> <li>A default mining loss of 90% is applied to the in situ coal. Periodically, the ROM coal production is reconciled against depletion of the mining model. Reconciliation to date shows more coal produced than modelled from the same areas.</li> <li>The Takitimu mine utilises truck and shovel for waste and coal movement. The operations are supported by additional equipment including dozers, graders, and water carts.</li> <li>Geotechnical studies have been completed for Black Diamond.</li> <li>Moisture Adjustments: Moisture is modified during both the mining and processing operations. In situ moisture is determined by the process described in Section 3 and is the base point for all moisture adjustments. Recoverable Coal Reserves are stated on a ROM moisture basis, as received by the processing plant. Marketable Coal Reserves are stated on a product moisture basis, as sold.</li> </ul>
Metallurgical factors or assumptions	<ul> <li>The ROM coal produced at Takitimu is crushed and screened on site. A process recovery of 95% is used based on a processing reconciliation study.</li> <li>Product coal specifications include ash, sulphur, moisture and calorific value.</li> </ul>
Environmental	<ul> <li>All environmental approvals are currently in place to operate the Coaldale section of the mine.</li> <li>Waste rock characterisation results show that the material is non-acid or metal producing, as such it does not require special placement requirements or procedures in the dumps.</li> </ul>
Infrastructure	All necessary infrastructure is in place and operational for the current operation.

Criteria	Commentary
Costs	<ul> <li>All infrastructure is in place at Takitimu. The primary ongoing capital requirements are for equipment replacement and this is included in the economic model.</li> <li>All operating costs were based on the 2020 Takitimu three year budget estimates provided by BRL and include allowances for royalties, commissions, mining costs, train loading and administration.</li> <li>Prices are at the mine gate. Customers pay for transport.</li> <li>Product specifications and penalties for failure to meet specification were provided by BRL.</li> </ul>
Revenue factors	<ul> <li>Prices are at the mine gate. Customers pay for transport.</li> <li>Product specifications and penalties for failure to meet specification were provided by BRL.</li> </ul>
Market assessment	Long term supply contracts are in place.
Economic	<ul> <li>No NPV analysis was completed as it is an operating mine. For JORC Reserves reporting purposes, detailed mine design and schedules are generated. This work includes identifying the mining sequence and equipment requirements.</li> <li>BRL generates detailed cash flow schedules and identifies incremental and sustaining capital.</li> </ul>
Social	BRL have required key stakeholder agreements in place.
Other	<ul> <li>All mining projects operate in an environment of geological uncertainty. The Competent Person is not aware of any other potential factors, legal, marketing or otherwise, that could affect the operations viability.</li> </ul>
Classification	<ul> <li>Classification of Ore Reserves has been derived by considering the Measured and Indicated Resources and the level of mine planning.</li> <li>For the Takitimu operation, Measured Coal Resources are classified as Proved Coal Reserves and Indicated Resources classified as Probable Coal Reserves, as the mine is currently operating and the level of mine planning adequate.</li> <li>The Inferred Coal Resources have been excluded from the Reserve estimates.</li> </ul>
Audits or reviews	Internal peer review and reconciliation by BRL of the Reserves estimate has been completed.
Discussion of relative accuracy/confidence	<ul> <li>Periodically, the ROM coal production is reconciled against depletion of the mining model. To-date more coal has been produced than modelled from the same areas.</li> <li>Accuracy and confidence of modifying factors are generally consistent with the current operation.</li> </ul>

## Appendix A:



Figure 8: Location of resource

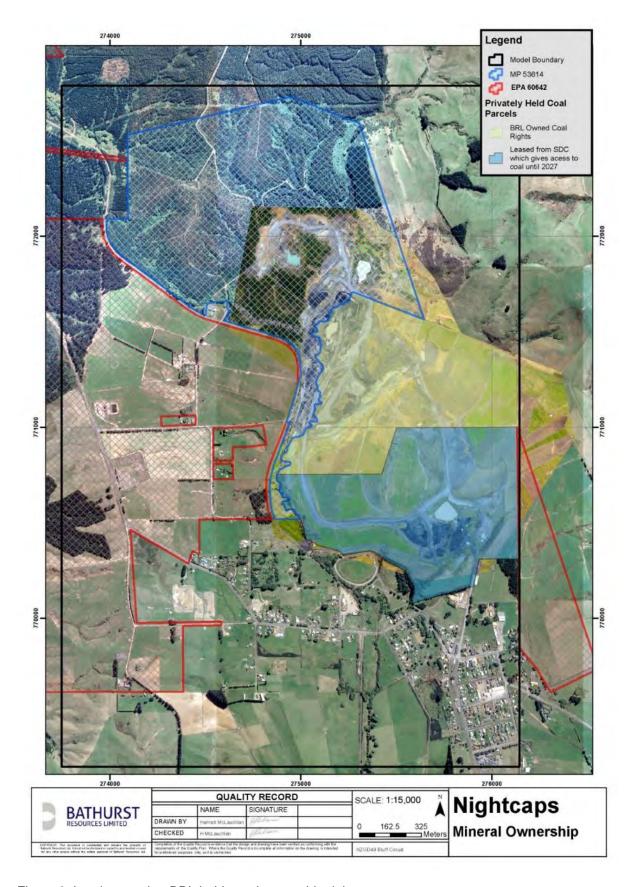


Figure 9: Land areas that BRL holds coal ownership rights

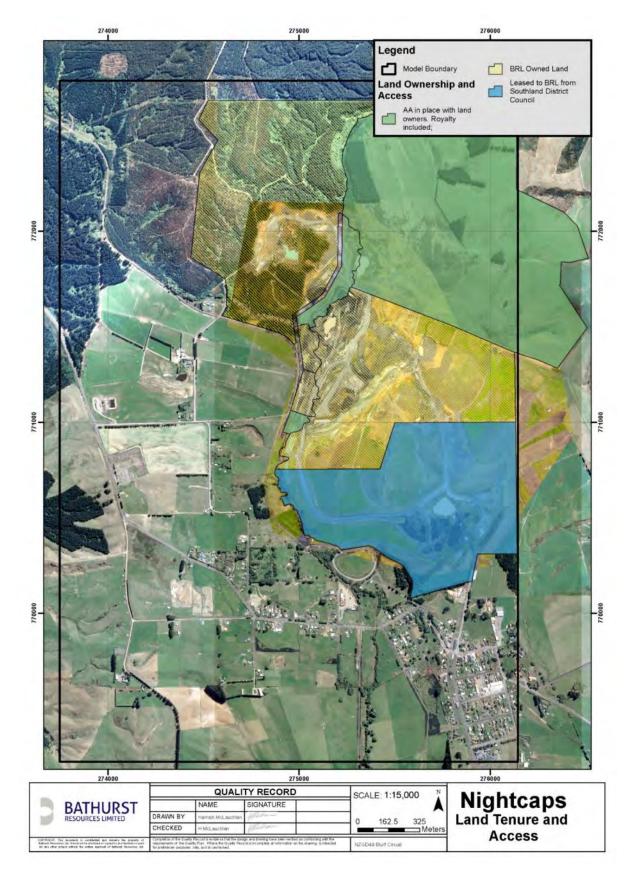


Figure 10: Access arrangement and land ownership status of land parcels within the project areas



Figure 11: Three regions within the Resource Model

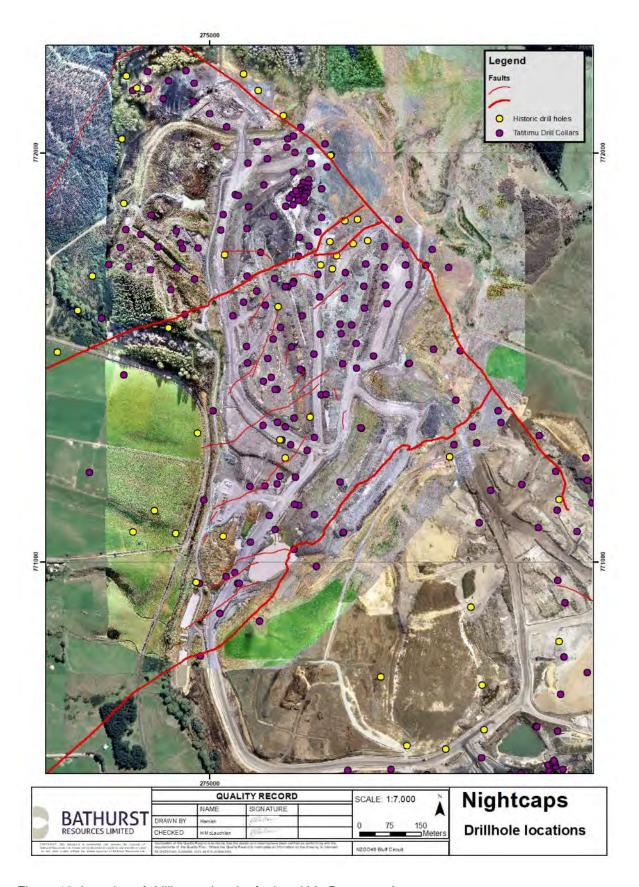


Figure 12: Location of drilling and major faults within Resource Area



Figure 13: Location of historic mine workings and areas of low confidence. Note: Recent opencast mined areas are not shown.

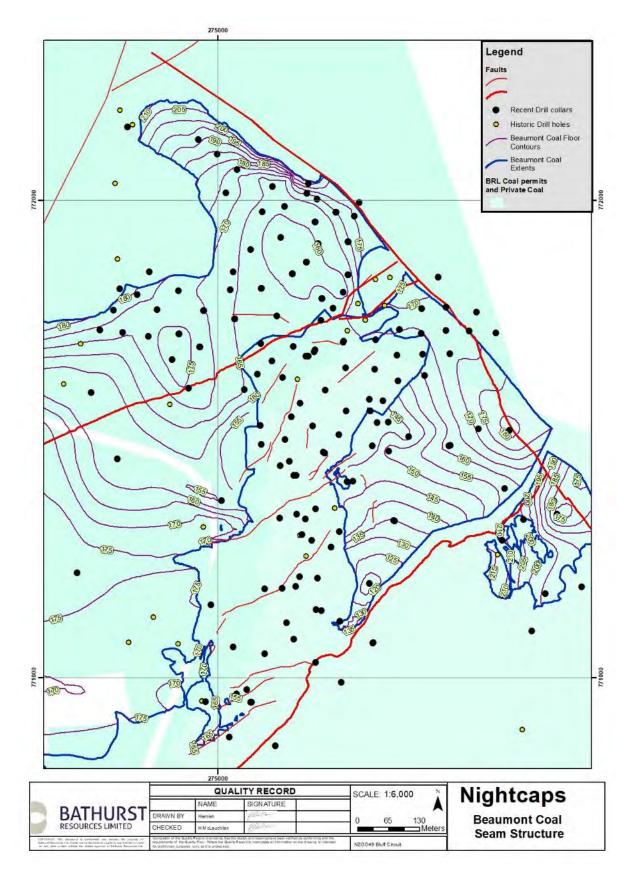


Figure 14: Beaumont Formation coal floor contours

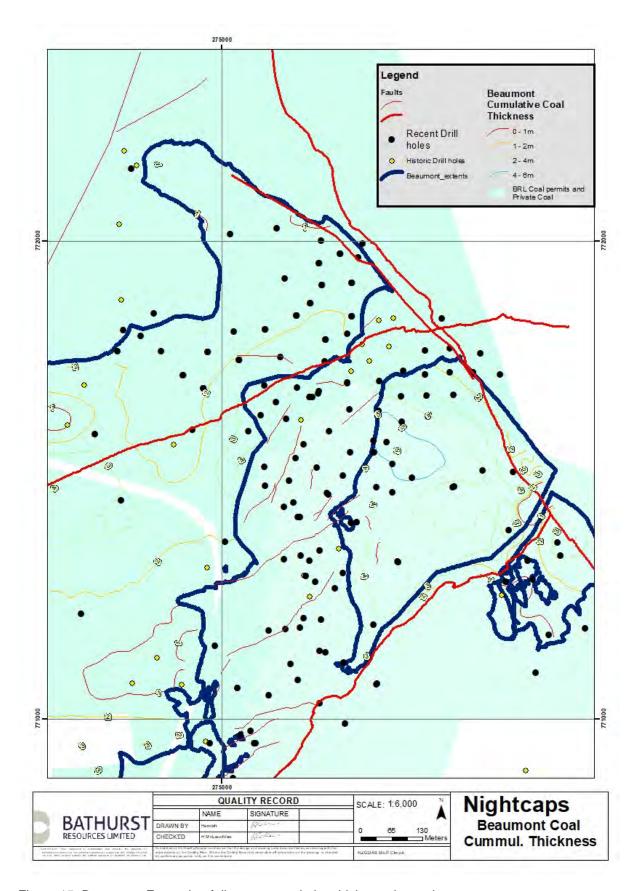


Figure 15: Beaumont Formation full seam cumulative thickness isopachs

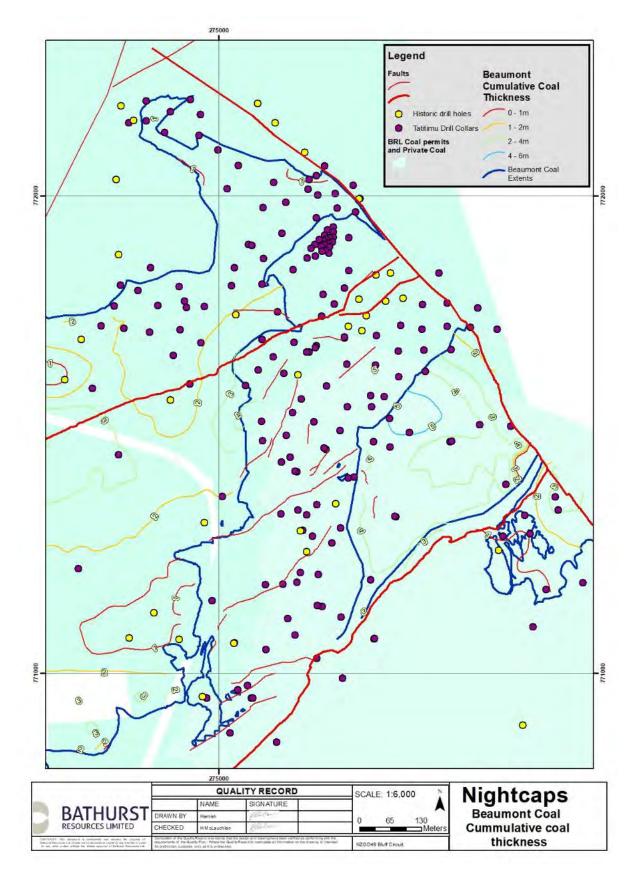


Figure 16: Beaumont Formation full seam ash isopachs

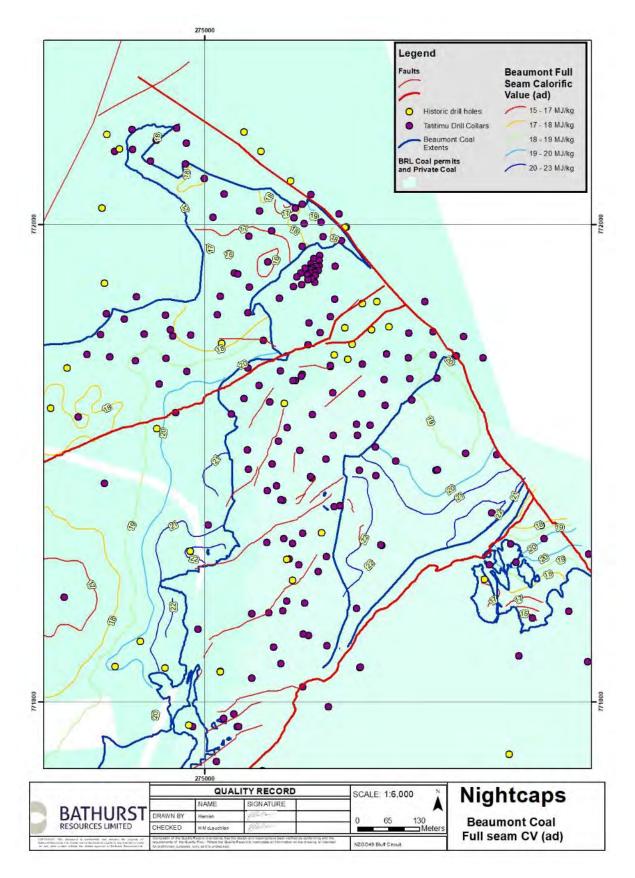


Figure 17: Beaumont Formation full seam calorific value isopachs

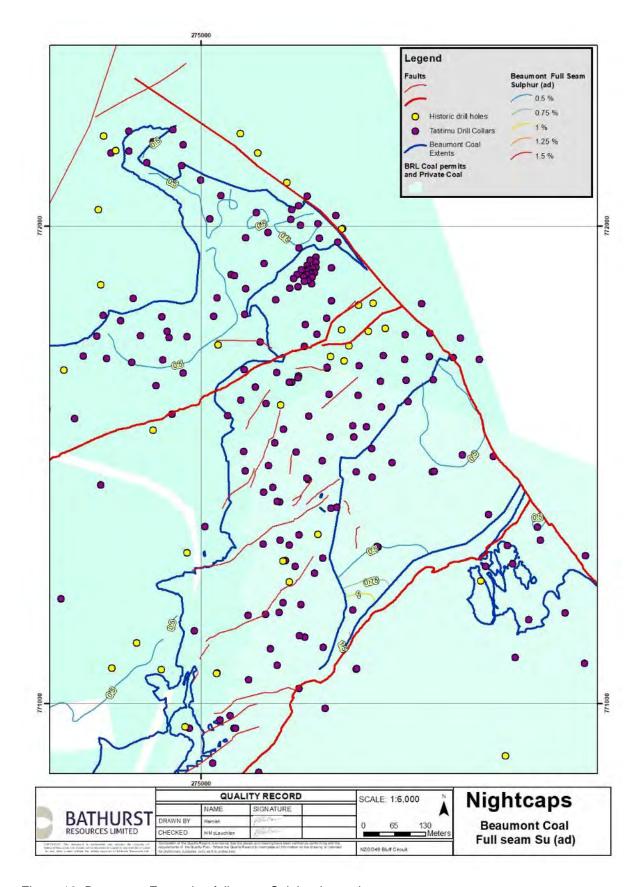


Figure 18: Beaumont Formation full seam Sulphur isopachs

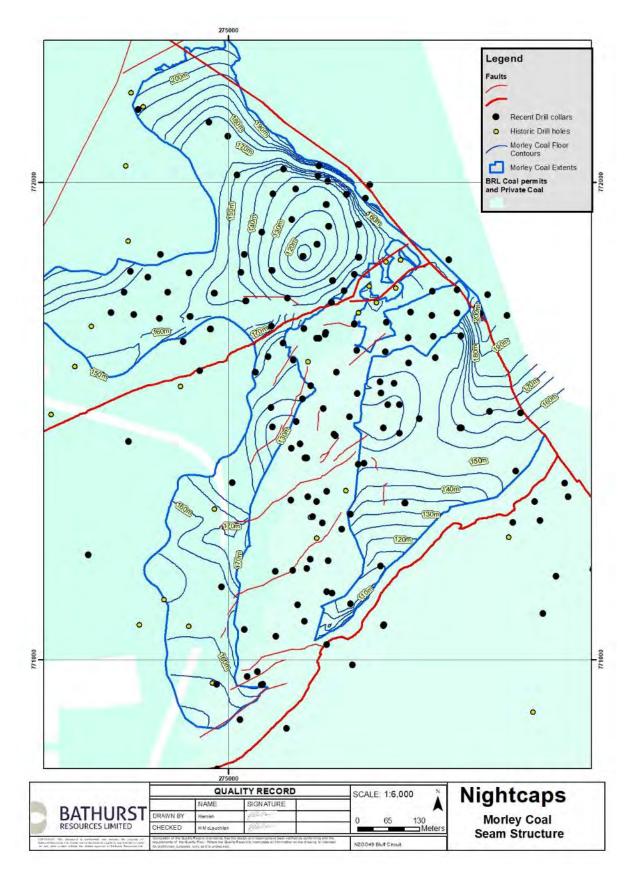


Figure 19: Morley Formation coal floor contours

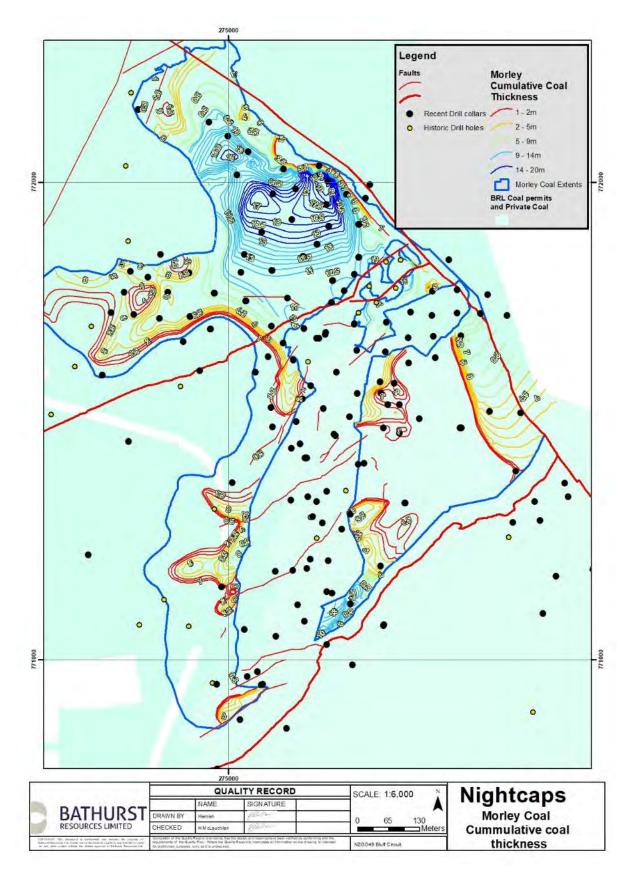


Figure 20: Morley Formation full seam cumulative coal thickness isopachs

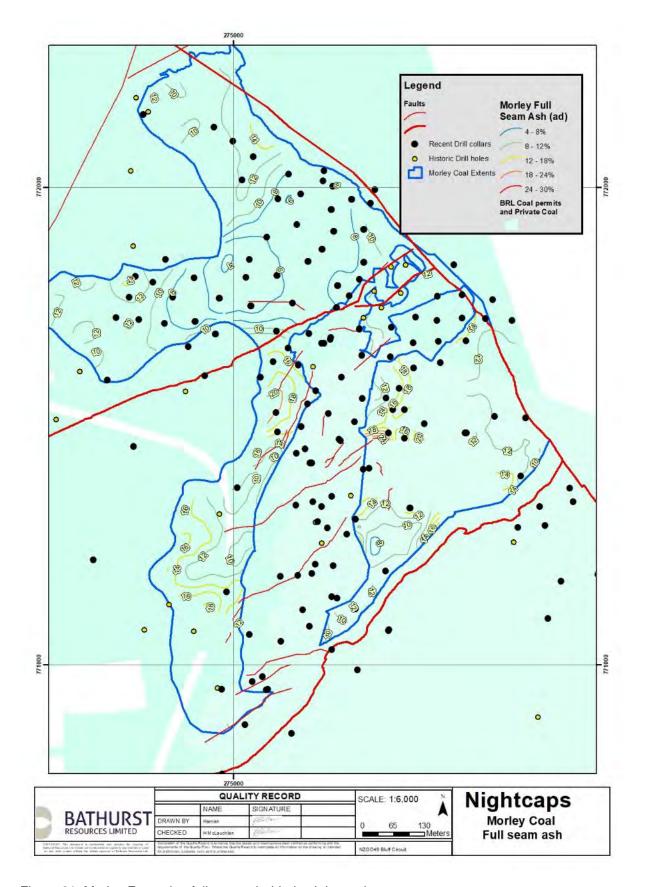


Figure 21: Morley Formation full seam air dried ash isopachs

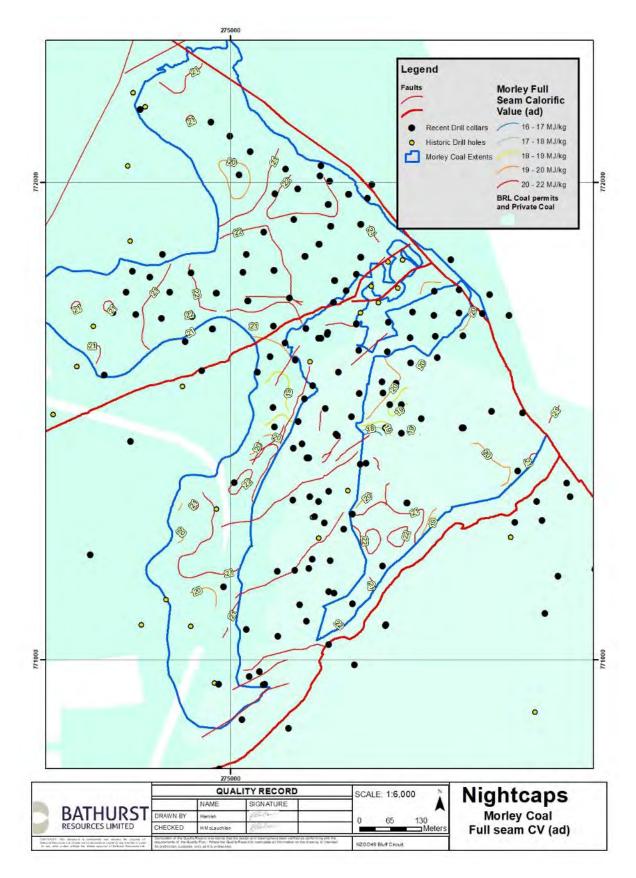


Figure 22: Morley Formation full seam air dried calorific value isopachs

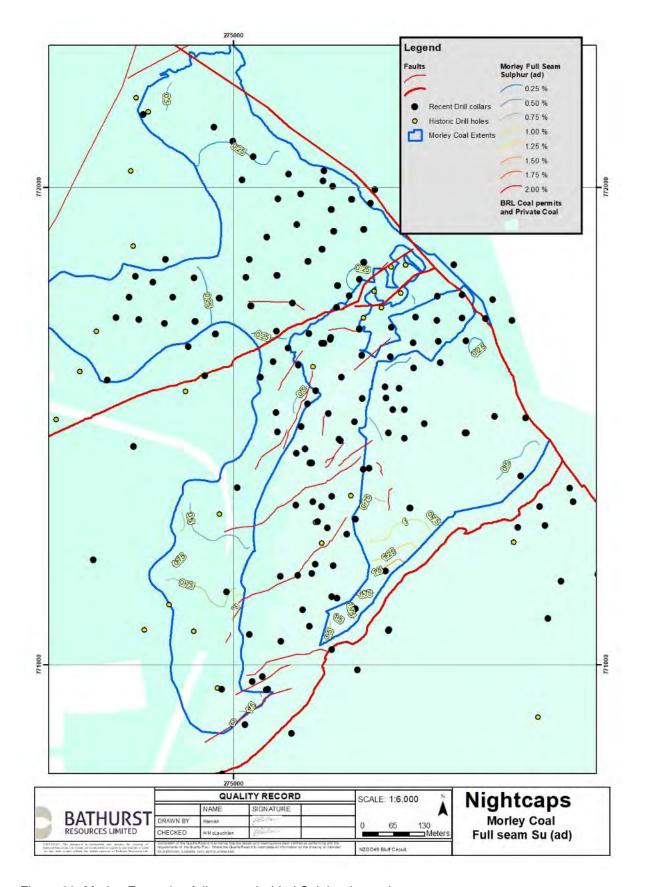


Figure 23: Morley Formation full seam air dried Sulphur isopachs

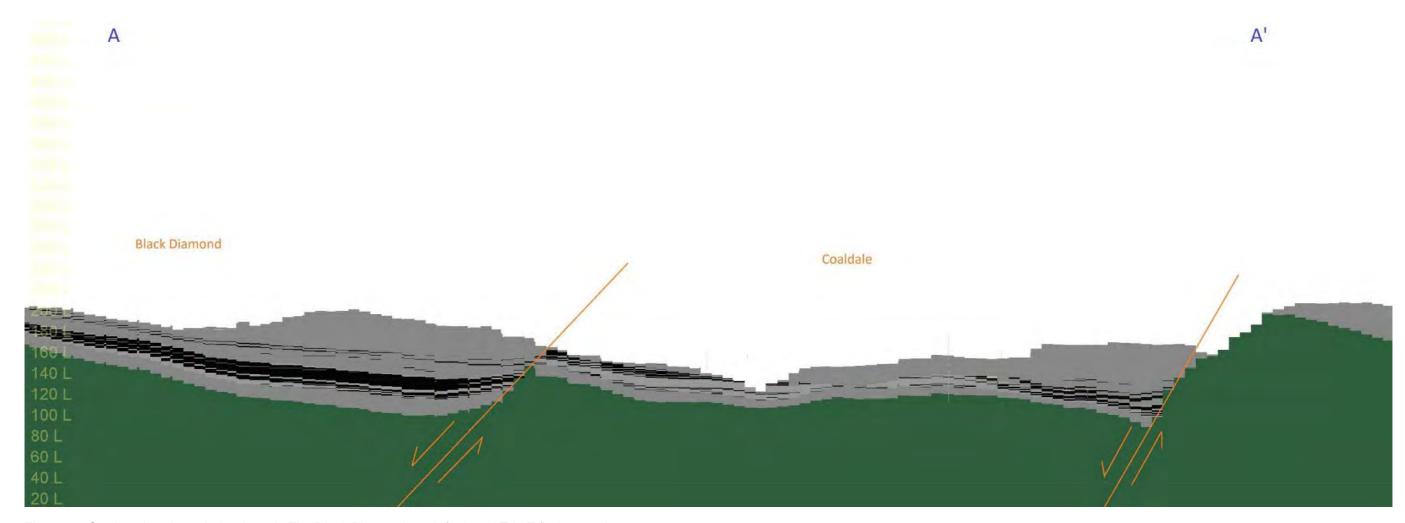


Figure 24: Section view through the deposit. The Black Diamond south fault and Trig E faults are shown

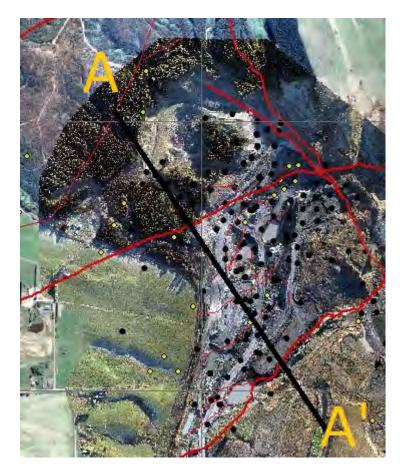


Figure 25: Plan view showing the section through A-A'.

# JORC Code, 2012 Edition - Table 1 Report for Rotowaro 2020

Section 1 Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	<ul> <li>Multiple campaigns of data acquisition have been carried out in the Waikato over the past century.</li> <li>Core sampling for coal quality sampling in undertaken using HQ (63.5mm) coring methods. Coal core samples are assigned unique ID's and dispatched to the laboratory with Chain of Custody tracking using paper, email and/or Acquire software. Core recovery recorded in the field is validated and adjusted if required using geophysics during core logging and sampling. Composite samples are generated from individual plies that are thickness weighted.</li> <li>A suite of geophysical logs, including density, natural gamma, calliper, sonic, dipmeter, acoustic scanner, and verticality was typically run in all holes since 1989. All tools are calibrated on a regular and systematic basis. All geophysical logging work conducted by reputable contractor.</li> <li>All analytical data has been assessed and verified before inclusion into the resource model.</li> </ul>
Drilling techniques	<ul> <li>Tungsten drag bits are used to drill open holes (and open hole sections) and triple tube core barrels are used to recover coal core to established industry standards. Core diameters are HQ (63mm). No core is orientated.</li> <li>In more recent periods diamond drillholes have been infilled with air-core holes. Air-core samples are logged onsite and provide coal seam roof and floor locations.</li> <li>A number of historic drillholes are included in the database for the areas being modelled. Drillholes that have no verifiable location, lithology log or survey, or contradict adjacent reliable data, are considered unreliable and are excluded from the resource modelling datasets.</li> </ul>
Drill sample recovery	<ul> <li>Standard industry techniques are employed for recovering core samples from drillholes. In open holes and open hole sections, cuttings are sampled at five metre intervals or change in lithology and logged. Core is obtained by HQ (63mm) diameter coring techniques, using triple tube operations, providing good core recovery, averaging 96%. On average recovery of target seams is 90%.</li> </ul>
Logging	<ul> <li>All diamond core samples are logged in a high level of detail down to a centimeter scale. Quantitative logging for lithology, stratigraphy, texture, hardness, RQD and defects is conducted using defined material code types based on characterisation studies and mineralogical assessments. Colour and any other additional qualitative comments are also recorded.</li> <li>In conjunction, most holes are geophysically logged with a suite of tools being used (as described above). Geophysical logs are analysed extensively and used to confirm and correct geological logs. Validation and, if required, correction of the geological logs against geophysics is undertaken to ensure accuracy and consistency. Verticality, caliper, density and natural gamma tools are checked regularly with standard calibration assemblies. The density calibrations are performed routinely with blocks of known densities (aluminum and/or water). A quality report is generated by the logging technician for each drillhole.</li> <li>Down hole geophysical logs were used to aid core logging. Down hole geophysics were used to correlate coal seams, to confirm depths and thickness of coal seams and to validate drillers' logs. Geophysics is also used to accurately calculate recovery rates of coal.</li> <li>Core photography is undertaken on all core samples.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>No splitting of core is undertaken in the field or during sampling. Sample interval and recovery recorded in the field by drillers is validated and adjusted if required using geophysics during core logging and sampling.</li> <li>Sample selection is determined in-house and is documented in a detailed core sampling procedure. Clean coal core has been sampled in 0.5m plies, depending also on core loss intervals and lithological variations.</li> <li>Sampling and sample preparation are consistent with international coal sampling methodology.</li> <li>Associated high ash coal intervals and partings were sampled separately to assess potential</li> </ul>

dilution effects where they are <0.5m thick. Composite horizons were determined by the ash

#### Criteria

#### Commentary

yield of the plies. Plies with ash yield >20% were excluded from the subsequent modelling processes.

- Ply thickness weighted compositing is conducted by SGS.
- Samples are placed into labelled bags to ensure proper Chain of Custody, and then transported
  to the laboratory for testing. The laboratory continues with the Chain of Custody requirements.
   Sample preparation is undertaken according to Industry Standards.
- HQ core diameter is considered to provide a sample of sufficient volume to be representative of
  the in situ material and provides adequate sample mass to undertake the variety of raw coal tests
  together with composite testing when required. Where the testing regime requires additional
  sample volume PQ core size is employed.
- For surface trenches coal samples of 2kg are obtained for each 0.5m ply interval approximately
  equivalent weight of 0.5m of HQ core. Trenches were sampled by hand ensuring all highly
  weathered and contaminated material are excluded.

# Quality of assay data and laboratory tests

• SGS and CRL (ACIRL Australia and Newman Energy subcontracted for specific tests) laboratories are used to undertake physical and chemical testing and use Industry Standards for all coal tests and systematic QA/QC procedures for all work. Both laboratories hold accreditation by International Accreditation New Zealand (IANZ). The processes employed are considered to be appropriate for coal sample analysis. Results are reviewed in-house to ensure the accuracy of the data by a senior geologist. The laboratory has been inspected by the Company's personnel. Tests include:

### **Chemical Analysis**

Loss on air drying (ISO 13909-4)

Inherent moisture (ASTM D 7582 mod)

Ash (ASTM D 7582 mod)

Volatile matter (ASTM D 7582 mod)

Fixed carbon (by difference)

Sulphur (ASTM D 4239)

Swelling index (ISO 501)

Calorific value (ISO 1928)

Mean maximum reflectance all vitrinite (RoMax) (Laboratory Standard)

Chlorine in Coal (ASTM D4208)

Gieseler plastometer (ASTM D 2639)

Forms of sulphur (AS 1038 Part 11)

Ash fusion temperatures (ISO 540)

Ash constituents (xrf) (ASTM 4326)

Ultimate analysis (ASTM D3176-09)

# **Rheological and Physical**

Hardgrove grindability index (ISO 5074, ASTM D409-02)

Relative density (AS 10382111-1994)

All analysis was undertaken and reported on an air-dried basis unless stated otherwise.

# Verification of sampling and assaying

- Sample assay results have been cross referenced and compared against lithology logs and downhole geophysics data. Results are also inspected by experienced geologists and compared with expected values utilising known coal quality relationships for the Waikato Coalfield.
- Generally, holes are geophysically logged, and verification of seam details is made through
  analysis of the geophysics. Assessments of coal intersections are undertaken by internal or
  contract geologist, and by a senior geologist. Geophysics allows confirmation of the presence
  (or absence) of coal seams, accurate determination of contacts to coal seams, density
  measurements are used to guide sampling and identify high ash bands.
- All diamond core samples are checked, measured and marked up before logged in a high level of detail.
- Every discrepancy between the measured length of the core and the driller's length marked on the core blocks is investigated. Discrepancies are resolved by geologists prior to sampling using geophysical logs.
- Quantitative logging for lithology, stratigraphy, texture, hardness, RQD and defects is conducted

# Criteria

### Commentary

using defined material code types based on characterisation studies and mineralogical assessments to the nearest centimetre. Colour and any other additional qualitative comments are also recorded.

- Raw logs and sample dispatch notes are logged on paper and then transferred to the Acquire database subsequently.
- Geophysical logs (dual density and gamma) are analysed extensively and used to validate and, if required, correct geological and sample interval logs to ensure accuracy and consistency.
- All core is photographed with corrected depth measurements before sampling.
- Sample sheets are developed in-house and receive a final check by the laboratory, prior to testing.
- All data is provided by the coal laboratory and reviewed internally. No adjustments are made to any coal quality data. In instances where results are significantly different from what was observed in geophysical logs or outside of local or regional ranges defined by previous testing, sample results are queried and/or retested. Since 2006 all coal quality data has been directly submitted and stored in electronic format using Acquire database software. Historic data is stored electronically either in Excel spread sheets or scanned documents. Twin holes have not been used.

# Location of data points

- Rotowaro data is presented in Mt Eden 1949 grid coordinate system in New Zealand with Auckland 1946 mean sea level datum (MSL).
- All drillholes post 1997 are surveyed using GPS technology and are located within +/- 40mm in three dimensions. Older drillhole collars were surveyed using conventional methods with an unknown precision.
- The topographic dataset consists of a digital terrain model (DTM) constructed from an airborne LiDAR survey (accurate to +/- 0.2m) collected for the whole of the Rotowaro site in December 2012. The DTM has been supplemented by GPS survey data (+/- 40mm accuracy) and aerial drone photogrammetric survey.
- Surveyed elevations of drillhole collars are validated against the site topography and orthocorrected aerial photography.
- Historical underground workings plans are based off historic hand drawn plans that have been geo-rectified (in 2D only) by converting from cadastral links to the Mt Eden 1949 geodetic grid.
- Drillholes with down-hole geophysics are surveyed for deviation with verticality tool (+/- 15° azimuth and +/- 0.5° inclination).

# Data spacing and distribution

- Drillholes are variably spaced (<75m to 300m) depending on target seam depth, geological structure, topographic constraints, down-hole conditions due to underground workings, and degree of existing data density in immediate surrounds.
- Resource estimation is based on the following drillhole spacing:
  - <75m = measured</p>
  - o 75-150m = indicated
  - o 150-300m = inferred
- Resources are downgraded from measured to indicated in areas that are indicated on historic plans to have had pillar extraction.
- A thickness weighted sample composition is run in Vulcan software prior to running the coal quality model.

# Orientation of data in relation to geological structure

- Orientation/spacing/density of drillholes is driven by both coal quality and geological structure.
  Historically geological structure was the main factor determining drillhole spacing and orientation.
  The focus since 2012 has been to delineate areas of elevated sulphur and ash and decrease sample spacing for coal quality.
- Drillhole spacing is biased by design, aiming to delineate areas of elevated and low sulphur and ash as well as high structural complexity throughout the mining areas.
- The low angle of strata dips means vertical drillholes are the most successful in achieving desired high angle intercepts of the coal seams.
- The modelling of the deposit uses holes both with and without reliable verticality data. Drillholes without verticality data are considered to be vertical.
- Vertical drilling is considered to be the most suitable drilling method of assessing the coal

Criteria	Commentary
	resource at Awaroa.
Sample security	<ul> <li>Core is removed from the borehole and put into core splits. Core is wrapped in clear-wrap to retain natural moisture and put into core boxes.</li> <li>Core is transported to core shed, unwrapped, logged, sampled and then re-wrapped.</li> <li>Chip samples are put into bags with marked intervals by drillers and transported to core shed for logging. Chip samples are disposed of once logged.</li> <li>Logged core is stored at the Rotowaro core logging facility on Rotowaro Road under lock and key, accessed only by registered personnel. Drill core is stored according to 'EXDP-N-27 Drill Core Storage'.</li> <li>Samples are bagged and labelled as outlined in company standard 'EXDP-N-24 Coal Quality Sampling and Analysis'.</li> <li>All analysis results are approved for input directly into Acquire database by resource geologist.</li> <li>It is not considered likely that individual coal samples face a risk of theft or sabotage as coal is a bulk commodity with little value for small volumes of coal from drill core.</li> </ul>
Audits or reviews	<ul> <li>Integrity of all data (drillhole, geological, survey, geophysical and CQ) is reviewed by resource geologist before being incorporated into the database system.</li> <li>An internal audit has been conducted in the past, verifying that core is being logged in a manner consistent with companywide procedures.</li> <li>Palaris completed an external review of this estimation in May 2016 as part of Solid Energy's Vendor Due Diligence process. No substantial issues were raised.</li> </ul>

# Section 2 Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	<ul> <li>The Rotowaro Resource area includes a mixture of Crown and privately-owned coal.</li> <li>BT Mining Limited is a joint-venture between Bathurst Resources Limited (65%) and Talley's Energy Limited (35%).</li> <li>On 1 September 2017 BT Mining Limited took control of Solid Energy assets including two operating mines (Rotowaro and Maramarua) in the Waikato region of the North Island and the Stockton mine on the West Coast of the South Island.</li> <li>Rotowaro CML37155 is a coal mining license of 2,423.8 hectares approximately, which is due to expire on 1 April 2027. All operations at Rotowaro including the Waipuna Extension pits are currently undertaken within the CML. BT Mining Ltd have sole ownership of the operation. BT Mining holds long term leases over the land underlying the operations.</li> <li>BT Mining holds EP (Exploration Permit) 56220 and MP (Mining Permit) 60422 which are Crownowned coal and straddle the western side of the CML.</li> <li>There are two coal owners accounting for coal reserves in the Rotowaro resource area. These are the Crown in the north of Rotowaro and the Ralph Estate. The Royalty Mortgage 17836 is a lease arrangement between the Crown and the Ralph Estate, whereby BT Mining Limited pays the Crown the Crown royalty for opencast coal (\$0.50/tonne) and the Crown, subsequently pays the Ralph Estate. The Ralph Estate (WJ and SM Ralph) owns the balance by way of Coal Leases 4092 and 199268.</li> </ul>
Exploration done by other parties	<ul> <li>The previous owner (Solid Energy) and its predecessors have undertaken all exploration in the area since 1986. However, there have been earlier periods of work that have contributed to the understanding of the Resource.</li> <li>Early data collection is based on drillhole logs recorded by drillers. From the 1970's drillholes were also logged by geologists who had the effect of increasing the accuracy, the amount of detail and ultimately the reliability of exploration data. The addition of geophysical logging in the late 1980's further added to the reliability.</li> </ul>
Geology	<ul> <li>The Rotowaro deposit trends north-south north of 618250mN and northwest-southeast south of 618250mN (Mt Eden Circuit 1949). The dip is to the northwest at the northern end of the deposit and to the southwest along the western margin. There are a series of northwest-southeast trending anticlines and synclines in the central and east of the deposit. Rotowaro is bounded to</li> </ul>

the southwest by the Mangakotukutuku Monocline, with a net throw of 90m down to southwest, and to the northeast by the extension of the Waipuna Fault scarp. There are only minor faults identified within the deposit, with throws less than 10m. These faults are either recorded on old underground mine plans or interpreted from structure contour plans derived from drillholes.

- The area is underlain by indurated siltstones, with common sandstones, of the Mesozoic Newcastle Group, weathered to a depth of 5-30m. This unit is referred to as "Basement" and has no economic significance.
- The Waikato Coal Measures ("WCM") lie unconformably on the basement and form the lower part of the Te Kuiti Group. The WCM consist mainly of mudstones and siltstones, often referred to collectively as "fireclay", with common siderite concretions, referred to as "hardbars". There are three major coal seam groups within the WCM: Renown, Kupakupa and Taupiri. The Taupiri seams are only represented in the Callaghan's sector of the Rotowaro Coalfield, where they are confined to the structural trough between the Mangakotukutuku Monocline and the Waipuna Fault scarp.
- Thickness patterns of seams lying close to basement are influenced by the paleo-relief developed on the basement contact, thickening and thinning over basement valleys and ridges respectively.
- The upper part of the Te Kuiti Group consists of marine to marginal marine claystones, mudstones, sandstones and siltstones which are conformably overly the WCM. There is a regional unconformity at the top of the Te Kuiti Group, above which lie the Quaternary deposits of the Tauranga Group, consisting of interlayered alluvial clays, muds and highly weathered volcanic ashes of the Hamilton formation.

### Drillhole Information

 In summary: 2,029 drillholes are located across the Rotowaro prospect. Only 1,160 of the drillholes have been used for modeling and resource estimation. 17 holes were not used as they were considered unreliable.

Drillhole Type	Holes /	Number of	Geophysically logged (Number of drillholes)
Wash Drill	1227	93026	2
Partially Cored Drilling	761	60571	84
Fully Cored Drilling	5	174	1
Air-core	36	2,726	15
Total	2029	156497	102

· Exploration drilling results have not been reported.

# Data aggregation methods

- The nominal cut-off for ash (ad) for constructing the Rotowaro structure model is set at 20%.
- Length and density weighted compositing by ply is undertaken during data preparation for Coal Resource estimation.
- The resource model is built as a block model with maximum 0.5m block thicknesses for coal.
   Coal ply data is used to grade estimate the block model.
- Some coal composite samples for full seam, minable sections have been taken for thorough
  analysis including ash constituents, forms of sulphur, ash fusion temperatures, and ultimate
  analysis. These composite samples are not used in grade estimation.

# Relationship between mineralisation widths and intercept lengths

- Due to the stratigraphic nature of coal measures, the coal seams generally lie in a horizontal or sub-horizontal plane. The resource discussed throughout this report has a dip to the northwest at the northern end of the deposit and to the southwest along the western margin. Folding and faulting through the coal seams create localised dips approaching 80°.
- A large majority of the surface drillholes were drilled vertically. A small number of inclined holes were drilled to target the Mangokotoku fault zone.

## **Diagrams**

- Diagrams can be found in the Appendix A for each of the following:
  - Location map
  - Geological QMap
  - Map showing Mining Licenses and Permits
  - Map showing exploration drillholes

Criteria	Commentary
	<ul> <li>Map of Resource Classification</li> <li>Map of underground workings</li> <li>Map showing Taupiri Main seam roof distribution</li> <li>Map showing Taupiri Main seam thickness distribution</li> <li>Map showing Taupiri Main seam ash distribution</li> <li>Map showing Taupiri Main seam sulphur distribution</li> <li>Map showing Reserve Classification</li> <li>Map showing Reserve Classification with pit designs</li> </ul>
Balanced reporting	<ul> <li>No exploration results are being presented in this report, rather this report is focused on advanced projects that have been defined by geological models with associated resource estimates completed.</li> <li>The exclusion of this information from this report is considered to not be material to the understanding of the deposit.</li> </ul>
Other substantive exploration data	<ul> <li>Groundwater has been encountered in most drillholes. A total of 418 piezometers have been installed at various depths in 256 different drillholes in order to monitor changes in ground water levels for geotechnical purposes. Currently there are 51 piezometers being monitored in 27 different drillholes.</li> <li>Bulk density of the coal is set to 1.3 t/m³.</li> <li>The different stratigraphic units and rock defects have been assigned various strength parameters based on a mixture of recent and historic laboratory test data (UCS, shear box and ring shears), empirical classifications (RMR, GSI and Hoek Brown) and back analysis of existing cut slopes. Downhole in situ geophysical measurements have been undertaken to compare the strength variability with actual laboratory test data.</li> </ul>
Further work	<ul> <li>Undertake studies on in situ moisture and density.</li> <li>Drilling programs are planned within southern parts of the Rotowaro Coal Mining License. This drilling will be incorporated into a future resource estimate.</li> </ul>

# Section 3 Estimation and Reporting of Mineral Resources

Criteria	Commentary
Database integrity	<ul> <li>All historic and legacy datasets have been thoroughly validated against original logs and results tables. Where reliability of the data is poor the data is excluded from the modelling process.</li> <li>Data recorded in the field is input into field books and later transcribed into electronic databases using standard software. All core logging data is recorded on paper than transferred directly into a central database using Acquire software. This software is designed to ensure data is entered and stored in a consistent and accurate manner by using dropdown menus of standard logging codes to prompt and constrain inputs. The database highlights out of range coal quality values, does not allow overlapping intervals nor logs extending beyond total hole depth. Any and all changes to the database are tracked and archived. Data correction and validation checks are undertaken internally before the data is used for modelling purposes.</li> <li>BRL utilises an Acquire database to store and maintain its geological exploration dataset.</li> <li>The Acquire database places explicit controls on certain data fields as they are entered or imported into the database such as overlapping intervals, coincident samples, illegal sample values, and standardised look-up tables for logging codes.</li> <li>Validation of historic wash drilled drillholes has been carried out by comparing coal seam depths and thicknesses with those of adjacent more reliable cored drillholes in cross-section. Coal quality data and geophysical logs have been used to validate more recent (post 1977) drillholes, to provide confidence in coal seam depths and thicknesses.</li> </ul>
Site visits	Hamish McLauchlan (the Competent Person) visits the project area on a regular basis.
Geological interpretation	<ul> <li>BRL has confidence in the geological model and the interpretation of the available data.         Confidence varies for different areas and this is reflected by the resource classification.</li> <li>Confidence in interpretation of geological stratigraphy, structure and seam correlation/continuity is variable across the Rotowaro area. Seam correlation are difficult to interpret in some areas</li> </ul>

# Criteria Commentary due to the discontinuo Variations in geologi

due to the discontinuous nature, and rapid variation in thickness of the coal.

- Variations in geological confidence are reflected representatively in the reported resource classifications.
- Residual uncertainty exists concerning geological structure along the Mangakotukutuku fault zone. All of the past interpretations of this zone involving highly complex faulting have been proven inaccurate as the geology is exposed through mining. Currently it is modeled as a large near vertical monocline.
- The data used in the geological interpretation included field mapping, LiDAR, drillhole data, core logging data, geophysical logs, sampling, coal quality laboratory testing and assessments.
- Coal seam ash content can vary locally due to the occurrence of siderite concretions and calcite
  veining in the coal seams. The resource model does not predict these occurrences well which
  leads to very localised increases in ash.
- Other factors affecting continuity of geology are basement ridges/thin coal and faulting. The Taupiri Lower seam can terminate against basement highs and ridges due to peat "onlap" during deposition. It can be difficult to predict whether the Taupiri Lower seam is merged with the Taupiri Main seam over basement highs, as is sometimes the case, or whether it terminates against the basement. This can lead to a want zone where the coal seam is absent. Where this has happened in the past it has been found that the increased thickness of the Taupiri Lower seam around the want zone balances out the losses of the want zone.

#### **Dimensions**

- The Rotowaro resource area covers approximately 11.5km².
- Within this area all seams are exposed in the operating mine. Pre-mining the Renown Seam roof
  was as close as 6m to the surface and the floor of the Taupiri Bottom seam is as deep as 290m
  (-200m RL) below the surface.
- Coal thickness varies considerably throughout the Rotowaro area, from 28m down to <0.5m.</li>

# Estimation and modelling techniques

- Two separate overlapping geologic models are used to define the geology within the resource area.
- Modeling has been undertaken using Maptek's Vulcan software by geologists and mining engineers trained and experienced in its use.
- The Tauranga Group (Quaternary sediments and soils) structural floor is modelled using a stacking algorithm with a pre-mining topographical surface as a reference.
- Structural surfaces for coal seams, Whaingaroa, Glen Massey, and Mangakotuku Formation's
  roof and floor are modelled using a triangulation algorithm to produce grids on a 10x10m basis
  in order to best define the structure in the project area. From these grid models a 10x10m block
  model is produced.
- Structural surfaces are cropped using an as-cut topography to remove material that has been mined, and an as-built topographical surface is then overlaid to create a structural roof of fill surface.
- Coal quality data is modelled using inverse distance block estimation. The estimation is completed over three runs for each coal quality parameter with increasing search distances. Estimated block values are determined as part of modelling workflow which are reviewed by a senior geologist to ensure no anomalies exist and that original data is honoured.
- From these grid models a 10x10m block model is produced.
- The Rotowaro resource was underground mined from 1919 to 1986. The Rotowaro No's.1, 3, 5, and 6, Callaghans, and Mahons all operated within the Rotowaro Coal Mining License. The Rotowaro West exploration permit has been underground mined by Awaroa No. 4, and Summit. Underground Mining studies for the site have been conducted with historic plans digitised and void size estimated based on mining techniques. From this the resource and reserves are depleted based on estimated recoveries as detailed below under mining factors or assumptions.
- The Rotowaro resource has also been mined by numerous open cast mines. Rotowaro 1, 2, and 3, Maori Farm 1, 2, and 3, Waipuna, Callaghans, Boundary, and the only currently operating mine Rotowaro have all operated in the Rotowaro Coal Mining License.
- The only material that could be considered by-product that is recovered from the Rotowaro resource is contaminated coal. This comes from collapsed underground workings and roof and floor cleanings. It is "washed" at the washery at an estimated 62% product yield.

Criteria	Commentary
	<ul> <li>Mining has been occurring continuously at Rotowaro since 1919 with no record of acid mine drainage.</li> <li>Validation of data during modelling occurs at three different stages:</li> </ul>
	<ul> <li>Firstly when importing drillhole data from the master Acquire database to ensure that the original dataset is in order.</li> </ul>
	<ul> <li>Once structural grids have been produced from drillhole data, the slice viewer tool is used to run sections through the grids both across and along dip to check for any anomalies.</li> <li>Finally, once structural grids have been produced from drillhole data the data posting tool</li> </ul>
	is used to ensure grid nodes honour drillhole data. Contour plans are also produced to ensure modelled values represent original data.
Moisture	<ul> <li>These three validation steps are conducted for thickness for all target seams.</li> <li>Testing work has been undertaken to determine moisture levels from all core with Inherent</li> </ul>
morstare	Moisture being measured and in the 8000, 15000, and 17000 series drillholes. Total Moisture is also measured.
Cut-off parameters	• A minimum seam thickness cut-off for all modelled seams is 0.50m, as this is what is considered to be mineable using current methods.
	The coal has been classified as high volatile sub-bituminous B rank and is likely to be marketed thermal coal.
	A maximum ash cut-off of 20% has been applied to all seams.
Mining factors	This declaration reports on a long-term operating site.
or assumptions	Selected mining method chosen from long term experience of local conditions.
accumptions	Geotechnical parameters for cut slope design were developed based on historical cut slope      The second state of the se
	performance, slope back-analysis and laboratory testing of material strength parameters. Slopes are designed to comply with a Factor of Safety that exceeds 1.2 and within BRL risk volume criteria which is a function of the probability of failure and potential failure dimensions.
	<ul> <li>Mining recoveries - minimum recoverable coal seam thickness is 0.5m. Coal seam recovery</li> </ul>
	increases as the seam thickens and is calculated by; mining recovery = ((seam thickness -0.15)/ seam thickness).
Metallurgical factors or assumptions	<ul> <li>Although not included in the resource model, studies have been conducted on the properties of the coal pertaining to combustion potential, Ash fusion temperatures and Hardgrove Grindability Index.</li> </ul>
Environmental factors or	There are a number of Resource Consents regarding land use, air, and water quality that must be strictly adhered to for the Rotowaro site.
assumptions	Rotowaro mine site has no rock types that are capable of generating acid rock drainage.
	Suspended solids are treated through a series of drains and sumps that collect dirty water which is pumped through the central water treatment where dosing with flocculants can occur if
	necessary before being discharged into the Rotowaro stream.
	<ul> <li>Waste material is rehabilitated using soils recovered before overburden removal. The soil is spread to a thickness of 0.4m, and then sown in grass seed before final rehab outcomes are implemented.</li> </ul>
	The Rotowaro site has resource consent to use bio-solids as a soil conditioner to help with reestablishing vegetation as part of the rehabilitation of certain areas of the site.
Bulk density	Bulk density for the coal is set to 1.3 t/m3.
Classification	Coal resources have been classified on the basis of geological and grade continuity balanced by
	relative uncertainties surrounding historic underground extraction and proximity to faults and unconformities. The result reflects the Competent Person's view of the deposit.
	<ul> <li>Closely spaced drilling with valid samples increases the confidence for each seam in resource assessments.</li> </ul>
Audits or	<ul> <li>Palaris completed an external review of this estimation in May 2016 as part of Solid Energy's</li> </ul>
reviews	Vendor Due Diligence process. No substantial issues were raised.
	In 2020 Golder Associates were engaged to review and rebuild the geology resource model.
	<ul> <li>Several internal reviews have been completed during the various project stages and during purchase due diligence. No audits or reviews have been undertaken on this resource estimation.</li> </ul>

Criteria	Commentary
Discussion of relative accuracy/confidence	<ul> <li>Based on the data available, the degree of accuracy of this statement is considered high for the Rotowaro resource. The process for calculation has used: Standards, Guidelines and the JORC Code along with best practice where available to define the Resource estimates provided to confirm search estimation ranges and drillhole spacing for each resource classification.</li> <li>Resource declared as potentially mineable resources.</li> <li>Although no geostatistical data is available for the deposit, resources reconcile well with production data. When all mining factors are taken into account and reserves calculated, the long-term performance of the model verses actual coal production shows approximately 5% higher coal production than represented in the Reserve model.</li> </ul>

# Section 4 Estimation and Reporting of Ore Reserves

Criteria	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul> <li>Reserves are calculated from measured and indicated resource areas that have been determined from drillhole spacing and presence of underground workings. See sections above.</li> <li>Resources are reported inclusive of the reserve.</li> </ul>
Site visits	<ul> <li>Damian Spring (the Competent Person) is an employee of BRL and visits the project area on a regular basis.</li> </ul>
Study status	<ul> <li>Rotowaro 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> <li>Pit optimisation runs were completed to determine economic pit limits.</li> <li>Thin seam cut-off limit determined from long term site experience and quality info related to sales product requirements.</li> </ul>
Mining factors or assumptions	<ul> <li>Pit shell determined initially determined by Whittle optimisation using a revenue factor of 0.80 subsequently modified after slope stability analyses.</li> <li>Minimum mining thickness, seam compositing factors, losses associated with u/g mining and washery yield.</li> <li>Truck and shovel has been determined to be most cost effective mining method given the multiple coal seams as well as the requirement for large quantity of ex-pit dumping initially required. This is the proven mining method in terms of past and present operations at site.</li> <li>Geotechnical parameters for cut slope design were developed based on historical cut slope performance, slope back-analysis and laboratory testing of material strength parameters. Basic highwall design criteria include slopes in Waikato Coal Measures (fireclay and coal) and 'softs' (marine sediments, quaternary clays and old backfill). Slopes are designed to comply with a Factor of Safety that exceeds 1.2 and within BRL's risk volume criteria which is a function of the probability of failure and potential failure dimensions. Consideration of underground workings intersecting highwalls also considered.</li> <li>Mining dilution factors are minimum mining tk 0.5m, parting 0.1m, coal waste 10:1, roof/floor losses 0.15m (combined) per recoverable seam.</li> <li>To account for minor unmodelled faults the quantity of in situ tonnes is downrated by 1%.</li> <li>A 'mining recovery' variable is calculated in the reserve model to account for roof and floor losses of 150mm. The formula is (seam thickness – 0.15) / seam thickness and the result ranges from 0.700 (0.5m mining horizon) to ~0.985 (10m mining horizon).</li> <li>Resource tonnes are calculated using estimated seam depletion quantities from historic records.</li> <li>KK seam first worked 30%, pillared 1.5m 55%, pillared 5.0m 65% and 8.0m 60%.</li> <li>TP seam: first worked 40% pillared 1.5m 55%, pillared 5.0m, 65%, pillared 8.0m, 60%, Pillared 1.0.0m, 55%.</li> </ul>
	Pillared 10.0m, 55%.  TL seam First worked 15%.  ROM tonnes are calculated by multiplying resource tonnes by mining recovery.

Criteria	Commentary
	Coal sent to the washery is then ROM tonnes multiplied by the proportion of the seam coal
	requiring washing.
	<ul> <li>Proportion of coal sent to wash plant; unworked 11%, first worked 23%, pillared 59%.</li> </ul>
	The washery yield is currently modelled at 62%.  Clean and controlled to the Planding Plant (PD) from the pit is simply POM tennes less week.
	<ul> <li>Clean coal sent direct to the Blending Plant (BP) from the pit is simply ROM tonnes less wash tonnes.</li> </ul>
	Total product coal is clean coal sent direct to BP plus washery product.
	CQ values adjusted for product specs by adding 0.55% to ash, 5.3% to convert air-dried moisture
	to produce moisture.
Metallurgical	Product coal specifications include ash, sulphur, fixed carbon, moisture and calorific value.
factors or	<ul> <li>Product specifications are adequate to meet contractual sales requirements.</li> </ul>
assumptions Environmental	All regulatory consents required for an operating mine are current.
	<ul> <li>Waste rock characterisation results show that the material is non-acid or metal producing, as</li> </ul>
	such it does not require special placement requirements or procedures in the dumps.
Infrastructure	All necessary infrastructure is in place and operational for the current operation.
Costs	Rotowaro is an existing operating mine and as such all infrastructure is in place at Rotowaro.
	The primary ongoing capital requirements are for equipment replacement and this is included in
	the economic model.
	<ul> <li>All operating costs were based on the three year budget estimates and include allowances for</li> </ul>
	<ul> <li>royalties, commissions, mining costs, train loading and administration.</li> <li>Product specifications and penalties for failure to meet specification are included.</li> </ul>
Revenue	<ul> <li>Product specifications and penalties for failure to meet specification are included.</li> <li>Long term sales contracts in place.</li> </ul>
factors	Long term sales contracts in place.
Market	The pit is an existing operating mine with long term sales contracts in place.
assessment Economic	A NO NOV analysis was completed as it is an energing mine. For IOPC Passaryos reporting
Economic	<ul> <li>No NPV analysis was completed as it is an operating mine. For JORC Reserves reporting purposes, detailed mine design and schedules are generated. This work includes identifying the</li> </ul>
	mining sequence and equipment requirements.
	<ul> <li>Lerch Grossman pit optimisation is used as a tool to identify resources that may have the</li> </ul>
	potential to be converted to reserve.
	BRL generates detailed cash flow schedules and identifies incremental and sustaining capital.
	Long term sales contracts in place.
Social	All regulatory consents required for an operating mine are current.
	Updating of approvals is an ongoing process and it is reasonably expected that any modifications      Application of approvals are additional agree as and that may be a provided as a baseline of the plant of the provided as a provided as a baseline of the plant of the plan
	to existing agreements or additional agreements that may be required can be obtained in a timely manner.
Other	All regulatory consents required for an operating mine are current.
Classification	Confidence based on resource model assessment.
	<ul> <li>Results fairly reflect the Competent Person's understanding of the deposit.</li> </ul>
	Classification of Ore Reserves has been derived by considering the Measured and Indicated
	Resources and the level of mine planning.
	For the Rotowaro operation, Measured Coal Resources are classified as Proved Coal Reserves
	and Indicated Resources classified as Probable Coal Reserves, as the mine is currently
	<ul> <li>operating and the level of mine planning adequate.</li> <li>The Inferred Coal Resources have been excluded from the Reserve estimates.</li> </ul>
Audits or	<ul> <li>Palaris completed an external review of this estimation in May 2016 as part of Solid Energy's</li> </ul>
reviews	Vendor Due Diligence process. No substantial issues were raised.
	<ul> <li>Several internal reviews have been completed during the various project stages and during</li> </ul>
	purchase due diligence.
Discussion of	Confidence in the result is reinforced by reviewing the long term performance of the sites history
relative	verses actual coal production. Historically previous models (using the same techniques as the
accuracy/ confidence	current model) have shown an approximate 5% conservatism. With a model update and pit

Criteria	Commentary
	<ul> <li>configuration change to include Waipuna West into the reserve statement a reconciliation has yet to be undertaken.</li> <li>Reserves are only stated for the current pit and do not include areas currently being investigated for further pit expansion to the east.</li> </ul>
	<ul> <li>Because the longer term results show good correlation between actual tonnes sold and the model it is thought the current modifying factors are performing adequately.</li> </ul>

# Appendix A:

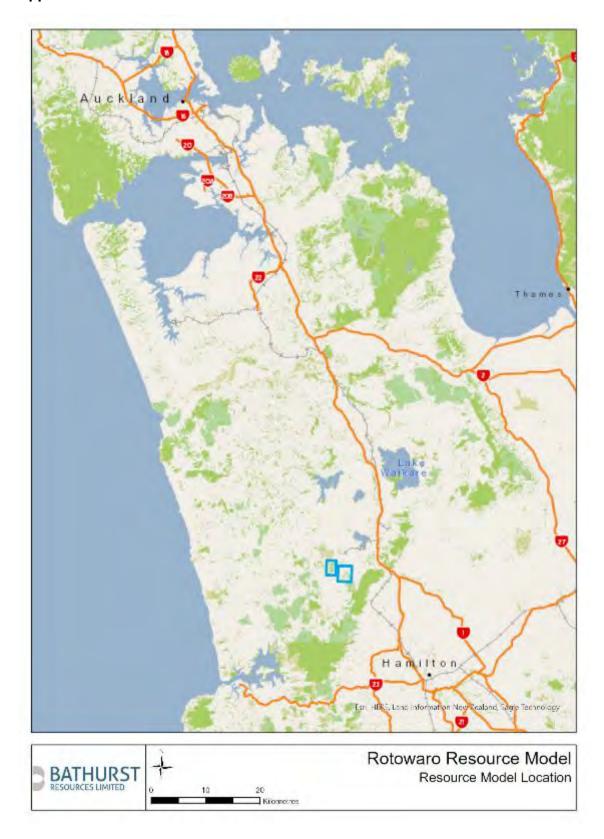


Figure 1: Location map of Rotowaro

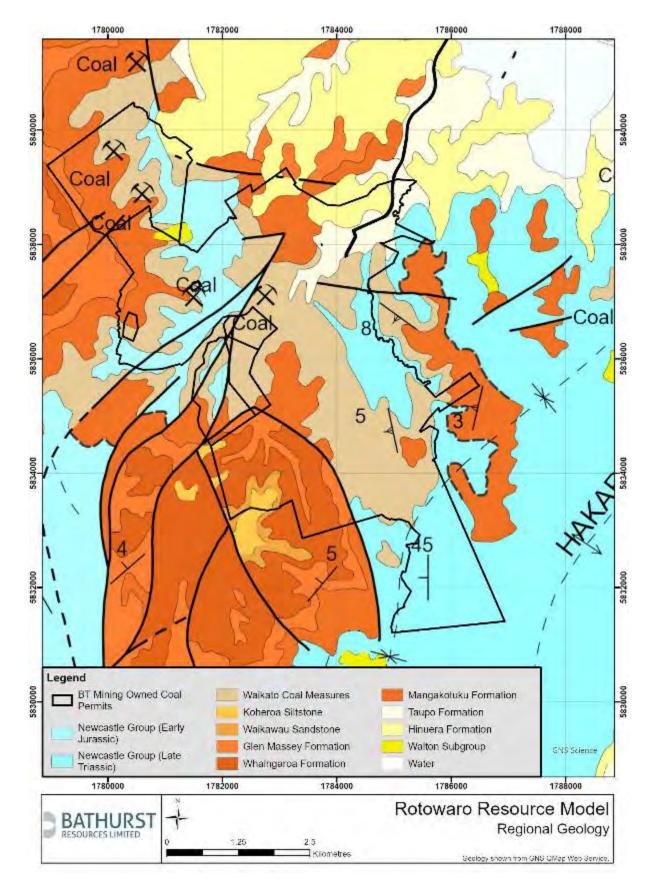


Figure 2: Regional Geology

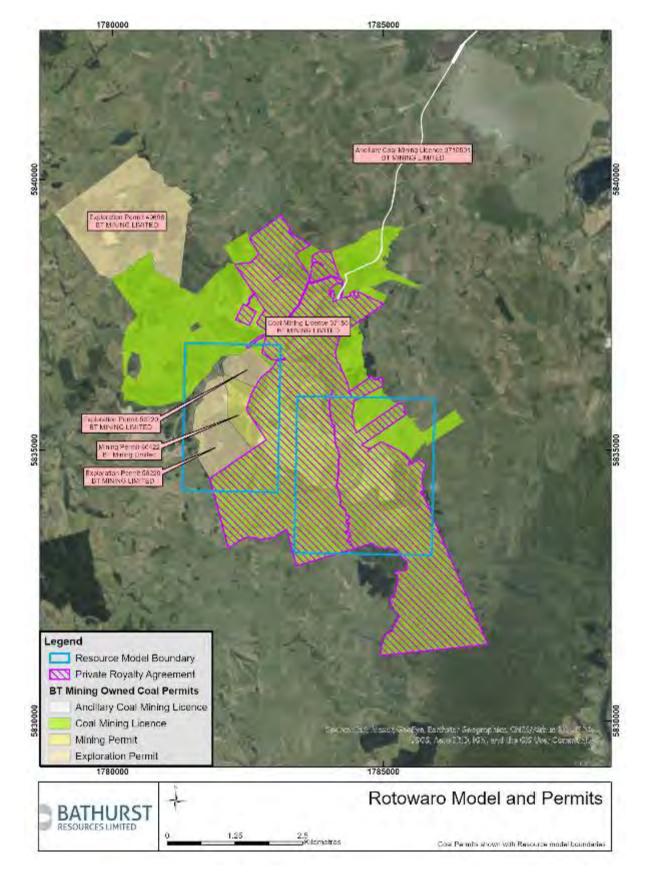


Figure 3: Rotowaro and the Coal Licenses and permits within the resource model area

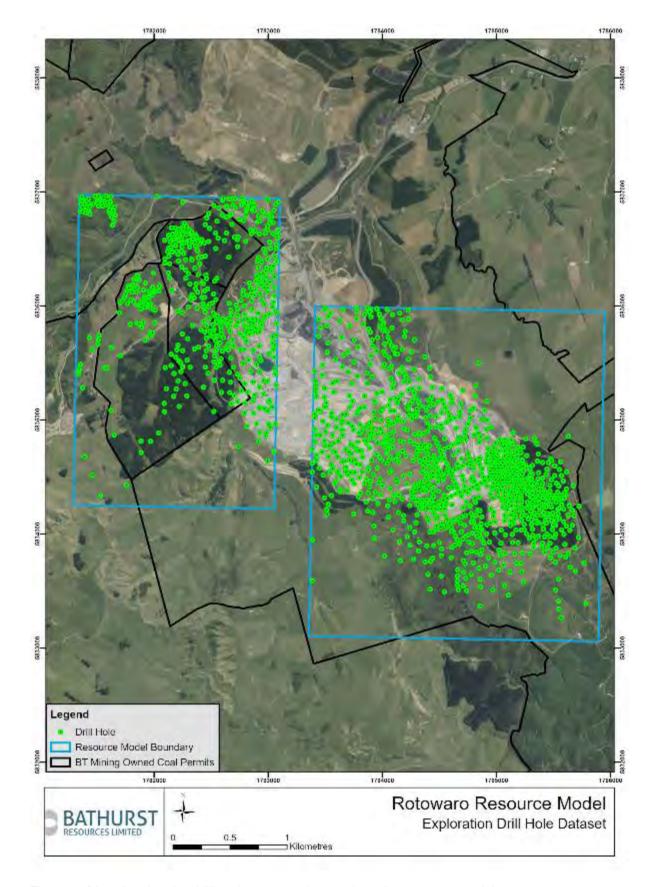


Figure 4: Plan showing the drilling dataset used to produce the resource model

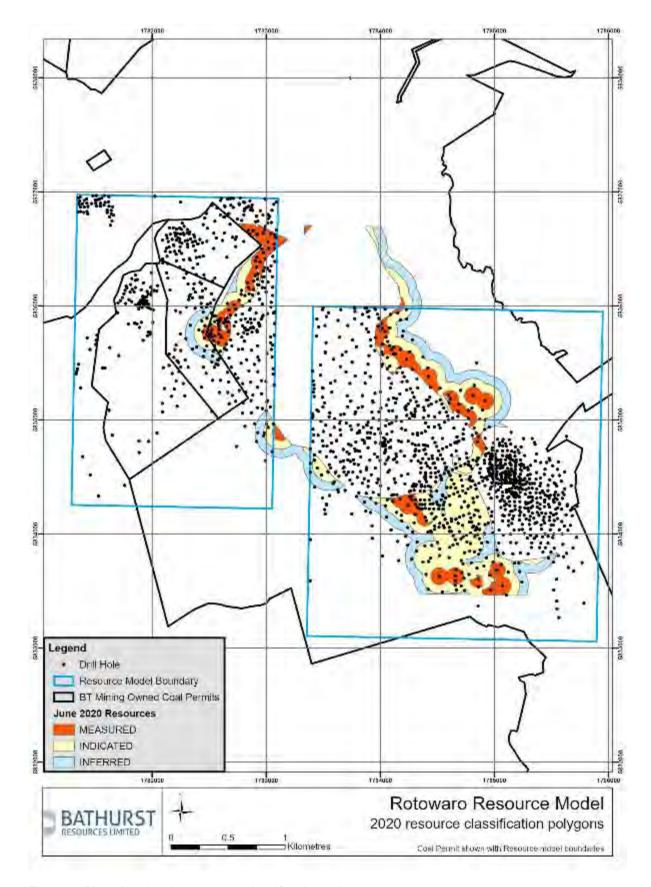


Figure 5: Plan showing the resource classification polygons

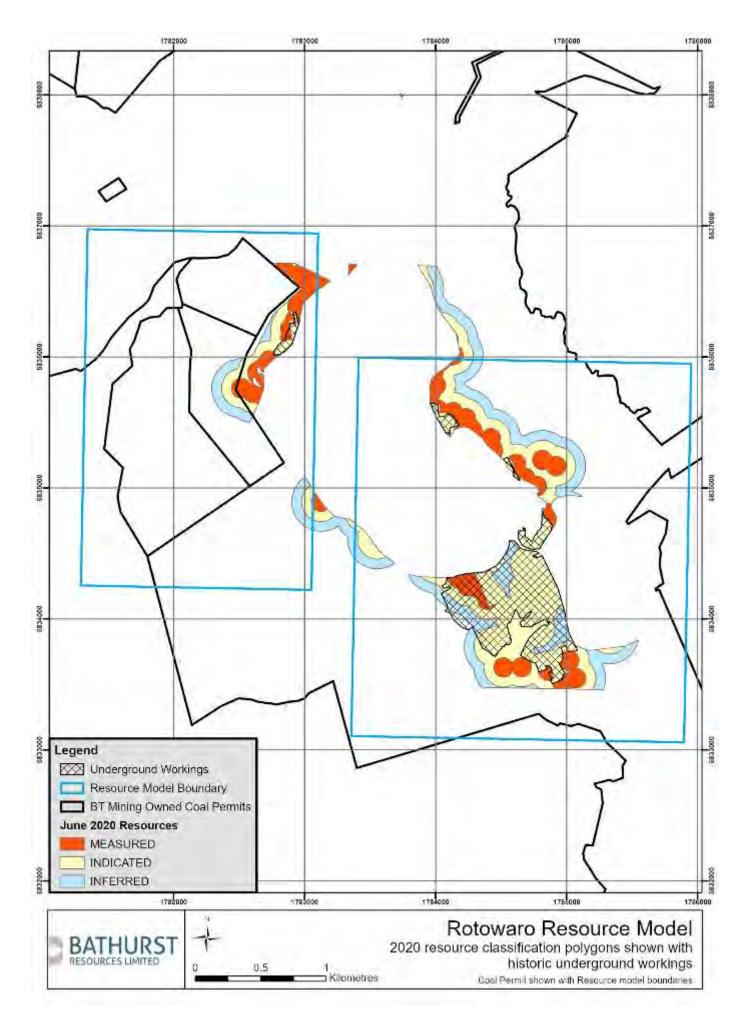


Figure 6: Extent of Underground Workings and Resource classifications.

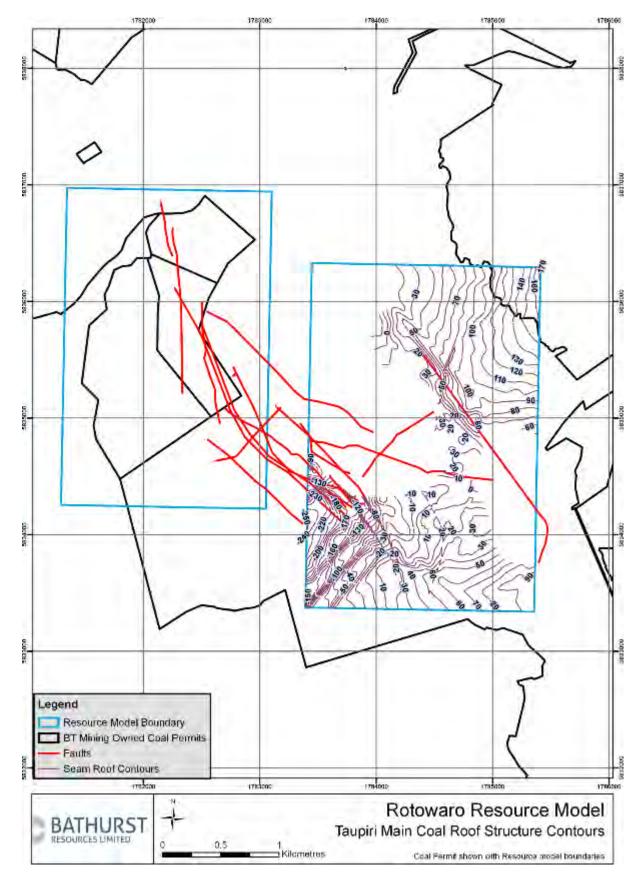


Figure 7: Plan showing the structure contours of coal seam roof

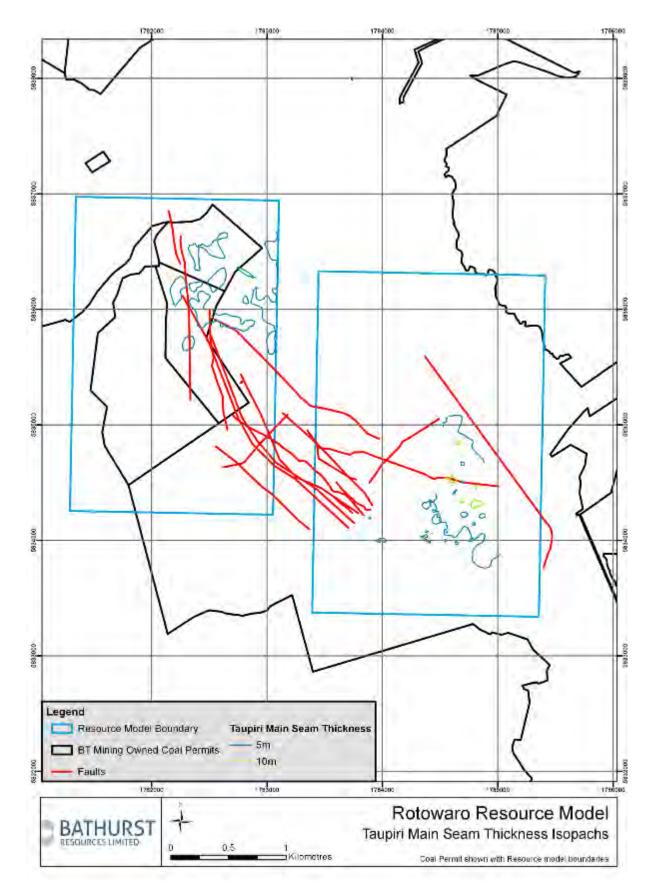


Figure 8: Plan showing full seam thickness contours over the model area

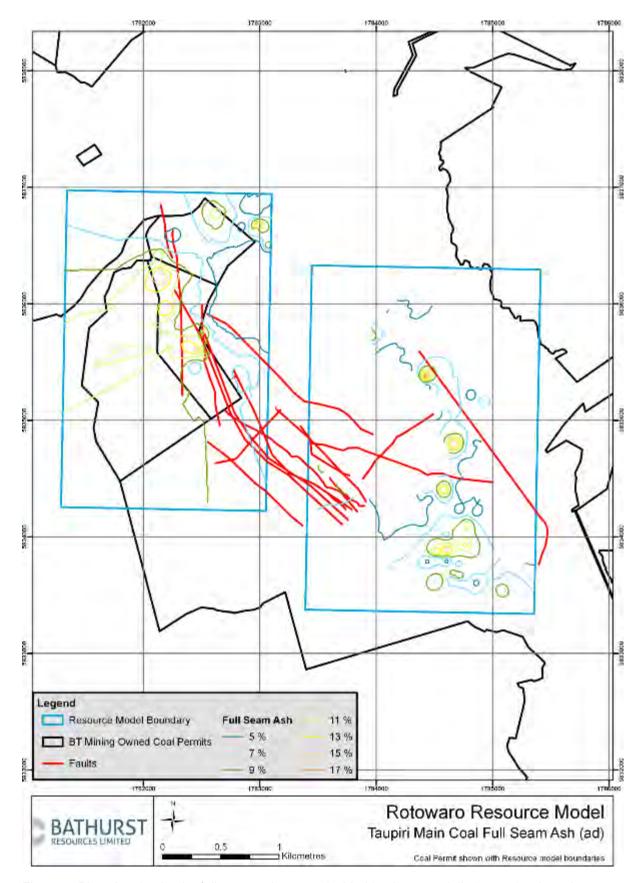


Figure 9: Plan showing in situ full seam ash on an air-dried basis as modelled over the deposit area

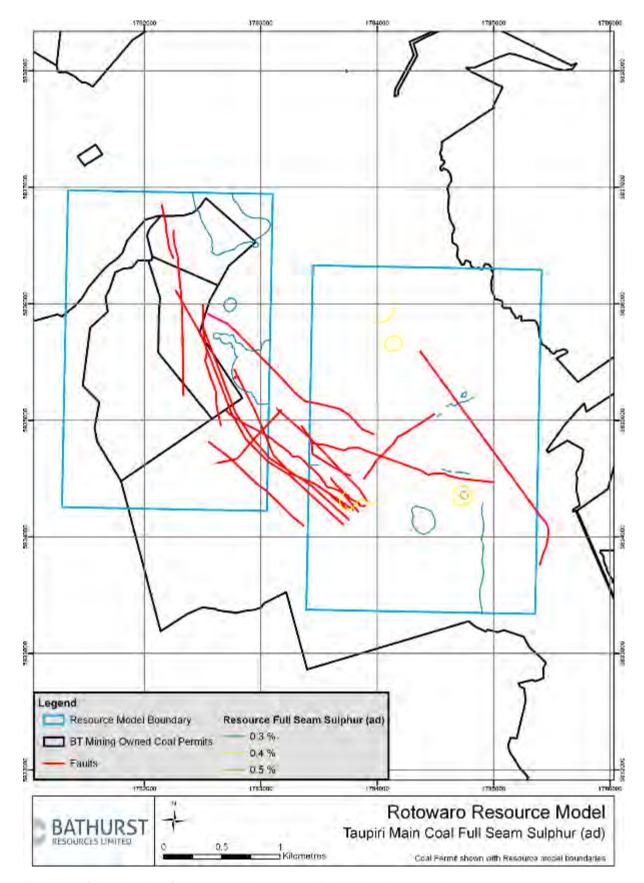


Figure 10: Plan showing full seam sulphur on an air-dried basis across the resource area

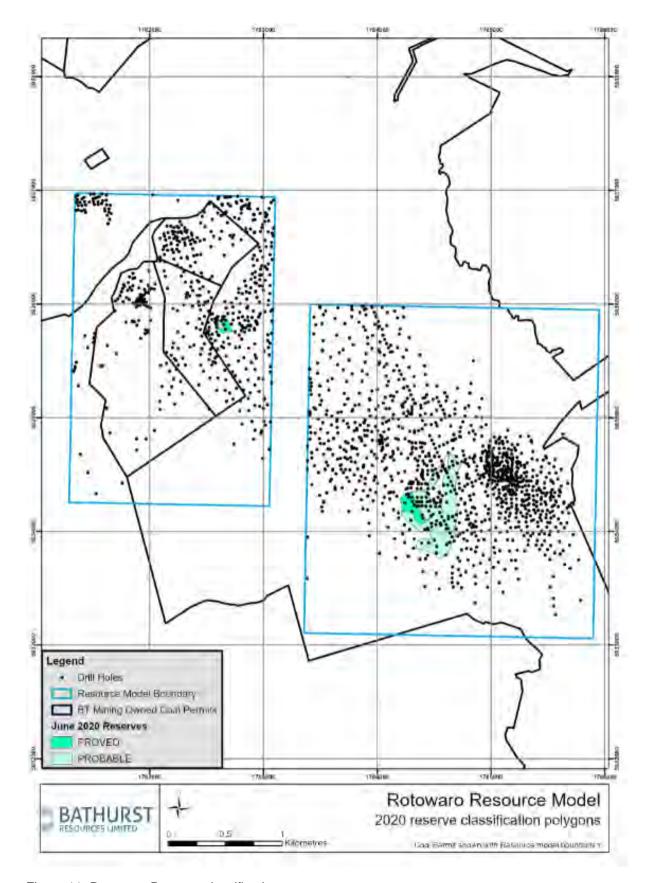


Figure 11: Rotowaro Reserve classification areas

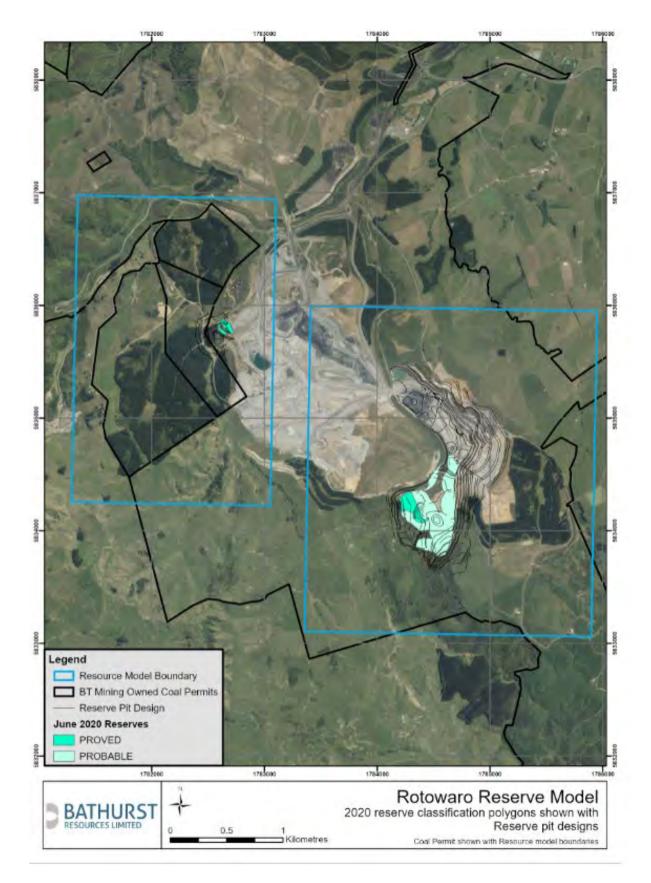


Figure 12: Rotowaro reserve pit shells

# JORC Code, 2012 Edition - Table 1 Report for Rotowaro North 2020

Section 1 Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	<ul> <li>Multiple campaigns of data acquisition have been carried out in the Waikato over the past century.</li> <li>Core sampling for coal quality sampling is limited in this area; when drilled they are undertaken using HQ (63.5mm) coring methods. Coal core samples are assigned unique ID's and dispatched to the laboratory with chain of custody tracked using paper, email and/or Acquire software. Core recovery recorded in the field is validated and adjusted if required using geophysics during core logging and sampling. Composite samples are generated from individual plies that are thickness weighted.</li> <li>A suite of geophysical logs, including Density, Natural Gamma, Calliper, Sonic, Dipmeter, Acoustic Scanner, and Verticality was typically run in all holes drilled in the last 10 years. All tools are calibrated on a regular and systematic basis. All geophysical logging work is conducted by a reputable contractor.</li> <li>All analytical data has been assessed and verified before inclusion into the resource model.</li> </ul>
Drilling techniques  Drill sample recovery	<ul> <li>Tungsten drag bits are used to wash drill open holes (and open hole sections) and triple tube core barrels are used to recover coal core to established industry standards. Core diameters are HQ (63mm). No core is orientated.</li> <li>In more recent periods diamond drillholes have been infilled with air-core holes. Air-core samples are logged onsite and provide coal seam roof and floor locations.</li> <li>A large number of historic drillholes are included in the database for the areas being modelled. Drillholes that have no verifiable location, lithology log or survey, or contradict adjacent reliable data, are considered unreliable and are excluded from the resource modelling datasets.</li> <li>Standard industry techniques are employed for recovering core samples from drillholes. In open holes and open hole sections, cuttings are sampled at five metre intervals or change in lithology and logged. Core is obtained by HQ (63mm) diameter coring techniques, using triple tube operations, providing good core recovery, averaging 96%. On average recovery of target seams in 00%</li> </ul>
Logging	<ul> <li>All diamond core samples are logged in a high level of detail down to a centimeter scale. Quantitative logging for lithology, stratigraphy, texture, hardness, RQD and defects is conducted using defined material code types based on characterisation studies and mineralogical assessments. Colour and any other additional qualitative comments are also recorded.</li> <li>In conjunction, most holes are geophysically logged with a suite of tools being used (as described above). Geophysical logs are analysed extensively and used to confirm and correct geological logs. Validation and, if required, correction of the geological logs against geophysics is undertaken to ensure accuracy and consistency. Verticality, caliper, density and natural gamma tools are checked regularly with standard calibration assemblies. The density calibrations are performed routinely - with blocks of known densities (aluminum and/or water). A quality report is generated by logging technician for each drillhole.</li> <li>Down hole geophysical logs were used to aid core logging. Down hole geophysics were used to correlate coal seams, to confirm depths and thickness of coal seams and to validate drillers' logs. Geophysics is also used to accurately calculate recovery rates of coal.</li> <li>Core photography is undertaken on all core samples.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>No splitting of core is undertaken in the field or during sampling. Typically, recovery from triple tube coring is &gt; 90%. Sample interval and recovery recorded in the field by drillers is validated and adjusted if required using geophysics during core logging and sampling.</li> <li>Sample selection is determined in-house and is documented in a detailed core sampling procedure. Clean coal core has been sampled in 0.5m plies, depending also on core loss intervals and lithological variations. A maximum ash cut off of 20% has been applied to all seams.</li> </ul>

Sampling and sample preparation are consistent with international coal sampling methodology.

#### Criteria

### Commentary

- Associated high ash coal intervals and partings were sampled separately to assess potential dilution effects where they are <0.5m thick. Composite horizons were determined by the ash yield of the plies. Plies with ash yield >20% were excluded.
- Ply thickness weighted compositing is conducted by SGS New Zealand Limited (SGS).
- Samples are placed into labelled bags to ensure proper Chain of Custody, and then transported
  to the laboratory for testing. The laboratory continues with the Chain of Custody requirements.
   Sample preparation is undertaken according to Industry Standards.
- HQ core diameter is considered to provide a sample of sufficient volume to be representative of
  the in situ material and provides adequate sample mass to undertake the variety of raw coal
  tests together with composite testing when required. Where the testing regime requires
  additional sample volume PQ core size is employed.

# Quality of assay data and laboratory tests

SGS and CRL (ACIRL Australia and Newman Energy subcontracted for specific tests) laboratories are used to undertake physical and chemical testing and use Industry Standards for all coal tests and systematic QA/QC procedures for all work. Both laboratories hold accreditation by International Accreditation New Zealand (IANZ). The processes employed are considered to be appropriate for coal sample analysis. Results are reviewed in-house to ensure the accuracy of the data by a senior geologist. The laboratory has been inspected by the Company's personnel. Tests include:

#### **Chemical Analysis**

- Loss on air drying (ISO 13909-4)
- o Inherent moisture (ASTM D 7582 mod)
- Ash (ASTM D 7582 mod)
- o Volatile matter (ASTM D 7582 mod)
- Fixed carbon (by difference)
- Sulphur (ASTM D 4239)
- Swelling Index (ISO 501)
- o Calorific value (ISO 1928)
- o Mean maximum reflectance all vitrinite (RoMax) (Laboratory Standard)
- Chlorine in Coal (ASTM D4208)
- Gieseler plastometer (ASTM D 2639)
- o Forms of sulphur (AS 1038 Part 11)
- o Ash fusion temperatures (ISO 540)
- Ash constituents (xrf) (ASTM 4326)
- Ultimate Analysis (ASTM D3176-09)

## Rheological and Physical

- Hardgrove grindability index (ISO 5074, ASTM D409-02)
- o Relative density (AS 10382111-1994)
- All analysis was undertaken and reported on an air-dried basis unless stated otherwise.

# Verification of sampling and assaying

- Sample assay results have been cross referenced and compared against lithology logs and downhole geophysics data. Results are also inspected by experienced geologists and compared with expected values utilising known coal quality relationships for the Waikato Coalfield.
- Generally, holes are geophysically logged, and verification of seam details is made through analysis of the geophysics. Assessments of coal intersections are undertaken by internal or contract geologist, and by a senior geologist. Geophysics allows confirmation of the presence (or absence) of coal seams, accurate determination of contacts to coal seams, density measurements are used to guide sampling and identify high ash bands.
- All diamond core samples are checked, measured and marked up before logged in a high level of detail down.
- Every discrepancy between the measured length of the core and the driller's length marked on the core blocks is investigated. Discrepancies are resolved by geologists prior to sampling using geophysical logs.
- Quantitative logging for lithology, stratigraphy, texture, hardness, RQD and defects is conducted
  using defined material code types based on characterisation studies and mineralogical
  assessments to the nearest centimeter. Colour and any other additional qualitative comments

# Criteria Commentary are also recorded. Raw logs and sample dispatch notes are logged on paper and then transferred to the Acquire database subsequently. Geophysical logs (dual density and gamma) are analysed extensively and used to validate and, if required, correct geological and sample interval logs to ensure accuracy and consistency. All core is photographed with corrected depth measurements before sampling. Sample sheets are developed in-house and receive a final check by the laboratory, prior to testing. All data is provided by the coal laboratory and reviewed internally. No adjustments are made to any coal quality data. In instances where results are significantly different from what was observed in geophysical logs or outside of local or regional ranges defined by previous testing, sample results are queried and/or retested. Since 2006 all coal quality data has been directly submitted and stored in electronic format using Acquire database software. Historic data is stored electronically either in Excel spread sheets or scanned documents. It is intended to validate and transfer all coal quality data into the Acquire database, this process has commenced and is ongoing. Twin holes have not been used. Location of Rotowaro North data is presented in Mt Eden 1949 grid coordinate system in New Zealand with data points Auckland 1946 mean sea level datum (MSL). All drillholes post 1997 are surveyed using GPS technology and are located within +/- 40mm in three dimensions. Older drillhole collars were surveyed using conventional methods with an unknown precision. The topographic dataset consists of a digital terrain model (DSM) constructed from an airborne photogrammetry survey (accurate to +/- 0.5m) collected for the whole of the Rotowaro North site in December 2014. Surveyed elevations of drillhole collars are validated against the topography and ortho-corrected aerial photography. Historical underground workings plans are based off historic hand drawn plans that have been geo-rectified (in 2D only) by converting from cadastral links to the Mt Eden 1949 geodetic grid. Drillholes with down-hole geophysics are surveyed for deviation with verticality tool (+/- 15° azimuth and +/- 0.5° inclination). Data spacing Drillholes are variably spaced (<75m to 500m) depending on target seam depth, geological and structure, topographic constraints, down-hole conditions due to underground workings, and distribution degree of existing data density in immediate surrounds. Resource estimation is based on the following drillhole spacing: 1. <75m = measured75-150m = indicated150-300m = inferredResources are downgraded from measured to indicated in areas that are indicated on historic plans to have had pillar extraction. Orientation of Orientation/spacing/ density of drillholes is driven by both coal quality and geological structure. data in Drillhole spacing is bias by design, aiming to delineate areas of elevated and low sulphur and relation to ash as well as high structural complexity throughout the mining areas. geological The low angle of strata dips means vertical drillholes are the most successful in achieving desired structure high angle intercepts of the coal seams. The modelling of the deposit uses holes both with and without reliable verticality data. Drillholes without verticality data are considered to be vertical. Vertical drilling is considered to be the most suitable drilling method of assessing the coal resource at Rotowaro North. Sample Core is removed from the borehole and put into core splits. Core is wrapped in clear-wrapped to security retain natural moisture and put into core boxes. Core is transported to core shed, unwrapped, logged, sampled and then re-wrapped.

Chip samples are put into bags with marked intervals by drillers and transported to core shed for

Criteria	Commentary
	<ul> <li>logging. Chip samples are disposed of once logged.</li> <li>Logged core is stored at the Rotowaro core logging facility on Rotowaro Road under lock and key, accessed only by registered personnel. Drill core is stored according to 'EXDP-N-27 Drill Core Storage'.</li> <li>Samples are bagged and labelled as outlined in 'EXDP-N-24 Coal Quality Sampling and Analysis'</li> <li>All analysis results are approved for input directly into Acquire database by a resource geologist.</li> <li>It is not considered likely that individual coal samples face a risk of theft or sabotage as coal is a bulk commodity with little value for small volumes of coal from drill core.</li> </ul>
Audits or reviews	<ul> <li>BRL has reviewed the geological data available and considers the data used to produce the resource model is reliable and suitable for the purposes of generating a reliable resource estimate.</li> <li>Integrity of all data (drillhole, geological, survey, geophysical and CQ) is reviewed by a resource geologist before being incorporated into the database system.</li> <li>An internal audit has been conducted in the past, verifying that core is being logged in a manner consistent with companywide procedures.</li> </ul>

# Section 2 Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	<ul> <li>The Rotowaro North Resource area includes a mixture of Crown and privately-owned coal.</li> <li>BT Mining Limited is a joint venture between Bathurst Resources Limited (65%) and Talley's Energy Limited (35%).</li> <li>On 1 September 2017 BT Mining Limited took control of Solid Energy assets including two operating mines (Rotowaro and Maramarua) in the Waikato region of the North Island and the Stockton mine on the West Coast of the South Island.</li> <li>Rotowaro North EP40698 is a mineral exploration permit of 363.96 hectares approximately, with an expiry date of 8 November 2018. An extension of duration application to this permit was lodged and accepted by New Zealand Petroleum &amp; Minerals. A subsequent mining permit application is being prepared. It is reasonably expected that these permit applications will be granted.</li> <li>There are three coal owners accounting for coal resources in the Rotowaro North resource area. These are the Crown in the south, Tapp Estate in the central region and Broughton Estate in the north. BT Mining Ltd has entered negotiations with the Tapp Estate to gain access to the coal resource in the central region.</li> </ul>
Exploration done by other parties	<ul> <li>The previous owners, Solid Energy and Glencoal Ltd and their predecessors, have undertaken a significant proportion of the exploration in the area. However, there have been earlier periods of work that have contributed to the understanding of the Resource.</li> <li>Early data collection is based on drillhole logs recorded by drillers. From the 1970's drillholes were also logged by geologists who had the effect of increasing the accuracy, the amount of detail and ultimately the reliability of exploration data.</li> </ul>
Geology	<ul> <li>The Rotowaro North deposit generally dips 3° to 7° to the north. Local dip variations occur adjacent to faults and seam dip varies related to differential compaction within the coal seams.</li> <li>Major faults in the Rotowaro coalfield were active in the basement rocks before the deposition of the Tertiary units began, several faults continued activity during early coal measure deposition. Faults vary in displacement with the displacement increasing northward.</li> <li>The NS trending faults tend to be up-thrown to the west and EW trending faults tend to be up-thrown to the south (Kirk, 1986). During the late Miocene the Kaikoura tectonism reactivated many of the late Cretaceous and early Paleogene faults leading to extensive sub-rectangular block faulting of the Te Kuiti Group.</li> <li>The Renown Fault is a north northeastern trending fault developed along the western margin of the coalfield, upthrown to the west with displacement varying from approximately 50m in the south up approximately 150m to the north.</li> </ul>

# Criteria Commentary

- The Waikokowai Fault is a north trending fault that defines the eastern coalfield boundary. This
  fault also shows an increase in displacement northward. The fault appears to have been active
  during the deposition of the older Tertiary marine formations as these units appear to be thicker
  on the downthrown side (Kirk, 1986).
- The Hetherington Fault is small scale north-east trending fault that joins the Waikokowai and Renown Faults. The Bain Fault is an east trending fault that increases from approximately 50m displacement near the Waikokowai Fault to approximately 150m displacement near the Renown fault.
- The area is underlain by indurated siltstones, with common sandstones, of the Mesozoic Newcastle Group, weathered to a depth of 5-30m. This unit is referred to as "Basement".
- The Waikato Coal Measures ("WCM") lie unconformably on the basement and form the lower part of the Te Kuiti Group. The WCM consist mainly of mudstones and siltstones, often referred to collectively as "fireclay", with common siderite concretions, referred to as "hardbars". There are two major coal seam groups within the WCM in the coal field, Renown and Kupakupa.
- The upper part of the Te Kuiti Group consists of marine to marginal marine claystones, mudstones, sandstones, limestones and siltstones which are conformably overly the WCM. There is a regional unconformity at the top of the Te Kuiti Group, above which lie the Quaternary deposits of the Tauranga Group, consisting of interlayered alluvial clays, muds and highly weathered volcanic ashes of the Hamilton formation.

## Drillhole Information

- In summary, 460 drillholes are located across the Rotowaro North prospect. All holes are used to create the geological model.
- Most holes were drilled between 1942 and 1986. Many of the coal intercepts are obtained from coal contact information from historic maps and do not have geological logs.

		3	<del>0</del> 0
Drillhole Type	Number of Holes / Sites	Number of Meters	Geophysically logged (Number of drillholes)
Wash Drill – with geo logs	72	3,983	0
Wash Drill – no geo logs	374	18143	0
Partially Cored Drilling	9	823	9
Air-core	5	253	3
Total	460	23,202	12

# Data aggregation methods

- Coal quality ply results are composited using a thickness weighted average to give an average Assay for the entire thickness of a coal seam.
- A minimum reported coal thickness of 0.5m has been used as a lower limit.

# Relationship between mineralisation widths and intercept lengths

- Due to the stratigraphic nature of coal measures, the coal seams generally lie in a horizontal or sub-horizontal plane. The resource discussed throughout this report has a general dip to the north. Folding and faulting through the coal seams create localised dips in different directions due to the orientation of the faults.
- All of the surface drillholes were drilled vertically.

### **Diagrams**

- Diagrams can be found in the Appendix A for each of the following:
  - Location map
  - Geological QMap
  - Map showing Mining Licenses and Permits
  - Map showing exploration drillholes
  - Map of Resource Classification
  - Map of underground workings
  - o Map showing Taupiri Main seam roof distribution
  - o Map showing Taupiri Main seam thickness distribution
  - Map showing Taupiri Main seam ash distribution
  - Map showing Taupiri Main seam sulfur distribution

# Balanced reporting

- No exploration results are being presented in this report, rather this report is focused on advanced projects that have been defined by geological models with associated resource estimates completed.
- The exclusion of this information from this report is considered to not be material to the

Criteria	Commentary		
	understanding of the deposit.		
Other substantive exploration data	<ul> <li>Groundwater has been encountered in most drillholes, with saturated conditions when there has been the intersection into historic pillared mined out areas.</li> <li>Bulk density of the coal has been defaulted to the common value of 1.3 as experienced in the adjacent coal filed operated by the Rotowaro Mine.</li> </ul>		
Further work	<ul> <li>There is currently a pre-feasibility study being conducted on the Rotowaro North Project with workstreams including but not limited to: <ul> <li>Structural and CQ drilling and associated test work.</li> <li>Increased accuracy in definition of the historic opencast areas.</li> <li>Geotechnical parameter determination.</li> <li>Piezometer installation.</li> <li>Washability test work.</li> <li>Environmental assessments.</li> <li>Stakeholder and community engagement.</li> <li>Land and Mineral Access arrangements.</li> <li>Mine optimization.</li> <li>Mine planning and scheduling.</li> <li>Financial analysis.</li> </ul> </li> </ul>		

# Section 3 Estimation and Reporting of Mineral Resources

Section 3 Estimation and Reporting of Mineral Resources		
Criteria	Commentary	
Database integrity	<ul> <li>All historic and legacy datasets have been validated against original logs and results tables.</li> <li>Data recorded in the field is input into field books and later transcribed into electronic databases using standard software. All core logging data is recorded on paper than transferred directly into a central database using Acquire software. This software is designed to ensure data is entered and stored in a consistent and accurate manner by using dropdown menus of standard logging codes to prompt and constrain inputs. The database highlights out of range coal quality values, does not allow overlapping intervals nor logs extending beyond total hole depth. Any and all changes to the database are tracked and archived. Data correction and validation checks are undertaken internally before the data is used for modelling purposes.</li> <li>BRL utilises an Acquire database to store and maintain its geological exploration dataset.</li> <li>The Acquire database places explicit controls on certain data fields as they are entered or imported into the database such as overlapping intervals, coincident samples, illegal sample values, standardised look-up tables for logging codes.</li> <li>Validation of historic wash drilled drillholes has been carried out by comparing coal seam depths and thicknesses with those of adjacent more reliable cored drillholes in cross-section. Coal quality data and geophysical logs have been used to validate more recent (post 1977) drillholes, to provide confidence in coal seam depths and thicknesses.</li> </ul>	
Site visits	Hamish McLauchlan (the Competent Person) visits the project area on a regular basis.	
Geological interpretation	<ul> <li>BRL has confidence in the geological model and the interpretation of the available data. Confidence varies for different areas and this is reflected by the resource classification.</li> <li>Confidence in interpretation of geological stratigraphy, structure and seam correlation/continuity is high across the Rotowaro North area, as the seams have a fairly consistent thickness and there are only two main seams.</li> <li>Variations in geological confidence are reflected representatively in the reported resource classifications.</li> <li>Residual uncertainty exists concerning the major geological structures in the deposit and their precise location and local effects on seams. These structures have been defined using regional geological maps and interpretation of the drillhole data sets in cross section.</li> <li>The data used in the geological interpretation included field mapping, regional geological maps, drillhole data, core logging data, geophysical logs, sampling, coal quality laboratory testing and assessments.</li> </ul>	

# Criteria Commentary Uncertainty surrounds the historic mine workings, both in the quality and quantity of coal extracted and surveying and positioning of underground workings. This is reflected in the resource classification. Coal seam ash content can vary locally due to the occurrence of siderite concretions and calcite veining in the coal seams. The resource model does not predict these occurrences well which leads to localised increases in ash. Other factors affecting continuity of geology are basement ridges/thin coal and faulting. This may lead to a want zone where the coal seam is absent. **Dimensions** The Rotowaro North resource area covers approximately 1,698ha. Within this area, both the Kupakupa and Renown seams have been mined via underground methods (Renown in the north and Kupakupa in the south) as well as subsequent opencast mining methods in areas of historic first worked coal. Coal thickness varies across the Rotowaro North area, generally ranging from 9m down to 0.5m. **Estimation** One single geologic model is used to define the geology within the resource area. and modelling Modeling has been undertaken using Maptek's Vulcan software by geologists and mining techniques engineers trained and experienced in its use. The Tauranga Group (Quaternary sediments and soils) structural floor is modelled using a stacking algorithm with a pre-mining topographical surface as a reference. Structural surfaces for coal seams, Whaingaroa, Glen Massey, and Mangakotuku Formation's

- roof and floor are modelled using a triangulation algorithm to produce grids on a 10x10m basis in order to best define the structure in the project area.
- Structural surfaces are cropped using an as-cut topography to remove material that has been mined, and an as-built topographical surface is then overlaid to create a structural roof of fill surface.
- Coal quality data is modelled using inverse distance algorithm with a trend order of one (linear interpolation) and maximum smoothing (nine passes). This method searches concentrically about each grid node for a minimum number of points to use to interpolate the grid node value. A maximum of 10 points were used with no maximum distance due to low data density over some of the project area. Seam, parting and coal quality grids produced as part of modelling workflows are reviewed to ensure no anomalies exist and that original data is honored.
- From these grid models a 10x10m block model is produced. Values assigned to blocks are determined from single grid node values.
- The resources within the Rotowaro North project area were underground mined by the MacDonalds Mine from 1930 to 1971 and the Renown Mine from 1927 to 1972. Underground mining studies for the site have been conducted with historic plans digitised and void size estimated based on mining techniques. From this the resource and reserves are depleted based on estimated recoveries as detailed below under mining factors or assumptions.
- The resource has also been mined by numerous open cast mines that have mainly targeted the regions of first worked coal.
- Various methods have been used to check the validity of the block estimation. This includes manual inspection of the model, QQ plots of the model qualities vs coal quality database and other comparison tools.
- The only material that could be considered by-product that is recovered from the Rotowaro resource is contaminated coal. This comes from collapsed underground workings and roof and floor cleanings. It is "washed" at the washery at an estimated 62% product yield.
- Mining has been occurring at Rotowaro North between 1927 and 2004 with no record of acid mine drainage.
- Validation of data during modelling occurs at three different stages:
  - Firstly, when importing drillhole data from the master Acquire database to ensure that the original dataset is in order.
  - Once structural grids have been produced from drillhole data, the slice viewer tool is used to run sections through the grids both across and along dip to check for any anomalies.
  - Finally, once structural grids have been produced from drillhole data the data posting tool is used to ensure grid nodes honor drillhole data. Contour plans are also produced to

Criteria	Commentary
	<ul> <li>ensure modelled values represent original data.</li> <li>These three validation steps are conducted for thickness and each coal quality variable for all target seams.</li> </ul>
Moisture Cut-off parameters	<ul> <li>The model has taken an average of available drillhole data and historic mine sampling records.</li> <li>A minimum seam thickness cut off for all modelled seams is 0.50m. It is the current minimum economic mining horizon at the current Rotowaro operation.</li> <li>The coal has been classified as high volatile sub-bituminous B rank and is likely to be marketed thermal coal, however based on historic coal quality records there may be a slight rank change across the resource.</li> </ul>
Mining factors or assumptions	<ul> <li>A maximum ash cut-off of 20% has been applied to all seams.</li> <li>Geotechnical parameters for cut slope design were developed based on the Rotowaro Mine's historical cut slope performance, slope back analysis and laboratory testing of material strength parameters. Slopes are designed to comply with a Factor of Safety that exceeds 1.2 and within BRL risk volume criteria which is a function of the probability of failure and potential failure dimensions.</li> </ul>
	<ul> <li>Minimum seam thickness is set at 0.5m or one block in height. Ash cut-off of 45% is used.</li> <li>Lerch Grossman pit optimisation is used as a tool to identify resources that may have the potential to be converted to reserve.</li> <li>Mining recoveries. Minimum recoverable coal thickness 0.5m. Unworked coal seam recovery 97%, first worked coal recovery 94% and pillared coal recovery 34%; - all include wash recovery.</li> </ul>
Metallurgical factors or assumptions	<ul> <li>Limited test work has been conducted to date; this will be determined during the pre-feasibility project.</li> </ul>
Environmental factors or assumptions	<ul> <li>There are a number of Resource Consents regarding land use, air, and water quality that will be sought at the end of the pre-feasibility study, and any issues will have mitigation factors applied in the application process.</li> <li>It is not anticipated that the Rotowaro North area will have rock types capable of generating acid rock drainage based on historic compliance when the area was in operation and looking at the discharges currently occurring on the site.</li> </ul>
Bulk density	<ul> <li>Bulk density is assumed the same as air-dried relative density.</li> <li>Density has been defaulted to the value of 1.3 based on Rotowaro mines records.</li> <li>This will be tested during the pre-feasibility project.</li> </ul>
Classification	<ul> <li>Coal resources have been classified on the basis of geological and grade continuity balanced by relative uncertainties surrounding historic underground extraction and proximity to faults and unconformities. The result reflects the Competent Person's view of the deposit.</li> <li>Closely spaced drilling with valid data increases the confidence for each seam in resource assessments.</li> </ul>
Audits or reviews	A comprehensive internal review of the resource model has been carried out by BRL.
Discussion of relative accuracy/confidence	<ul> <li>Based on the data available, the degree of accuracy of this statement is considered high for the Rotowaro resource. The process for calculation has used: Standards, Guidelines and the JORC Code along with best practice where available to define the Resource estimates provided to confirm search estimation ranges and drillhole spacing for each resource classification.</li> </ul>

# Appendix A:

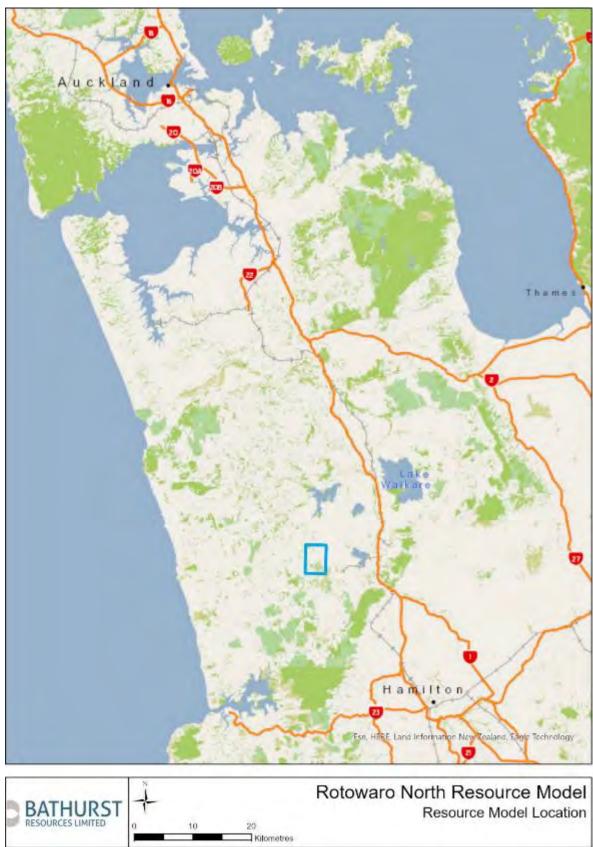




Figure 1: Location map of Rotowaro North

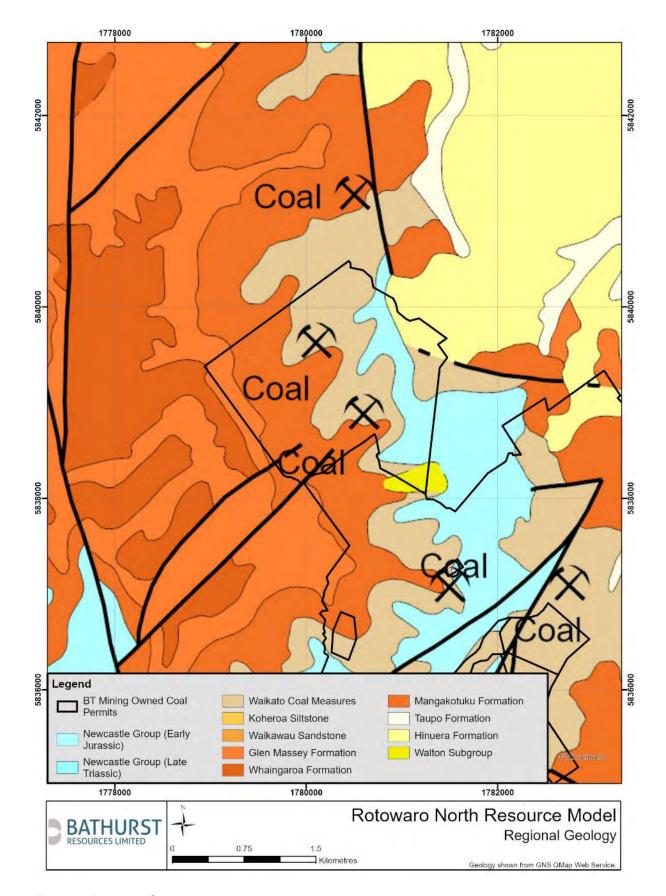


Figure 2: Regional Geology

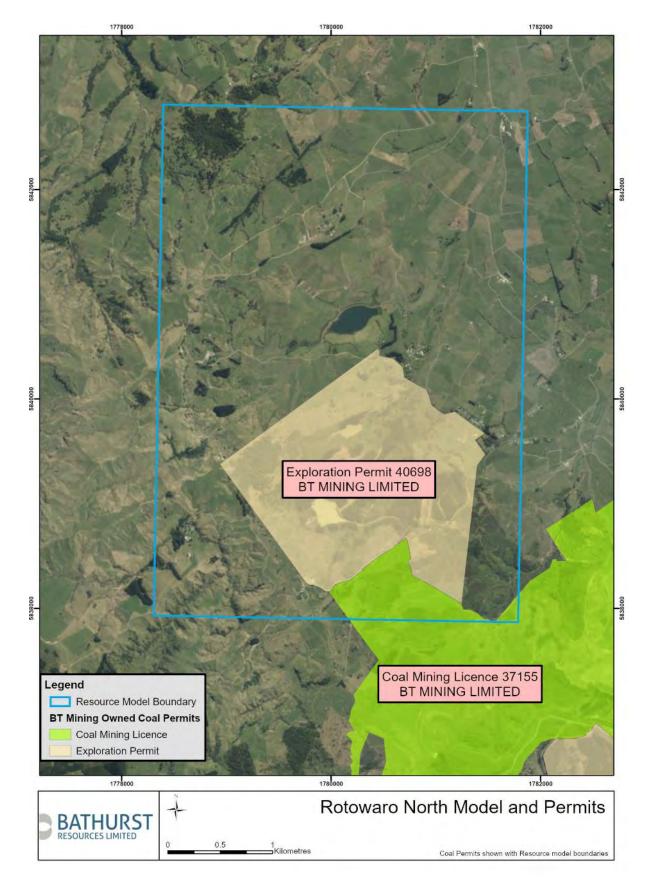


Figure 3: Rotowaro North permits within the resource model area

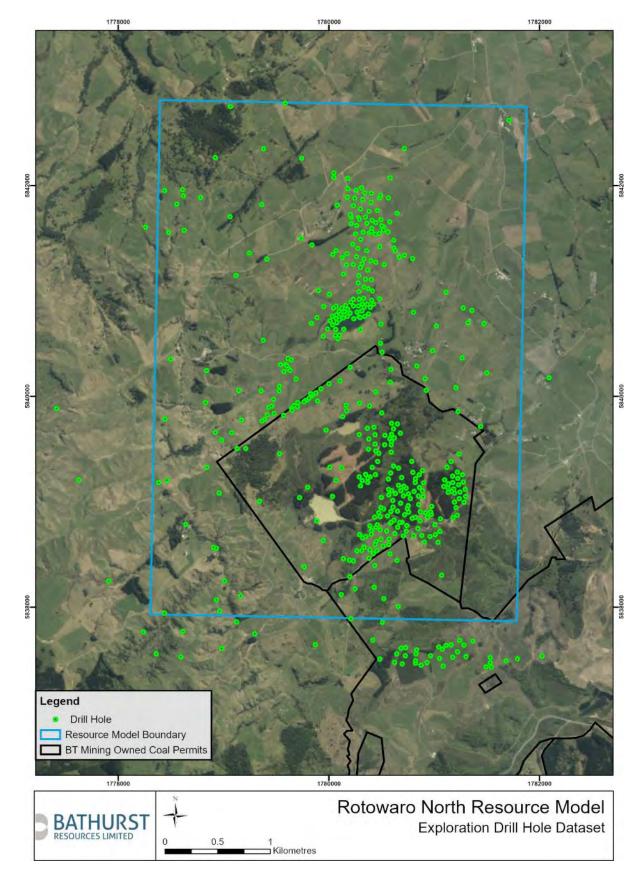


Figure 4: Plan showing the drilling dataset used to produce the resource model

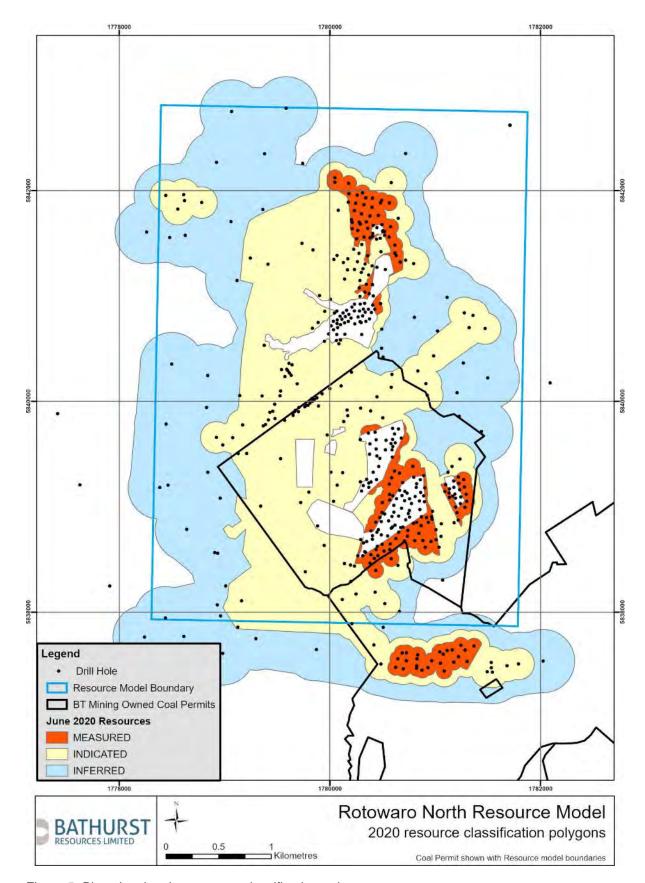


Figure 5: Plan showing the resource classification polygons

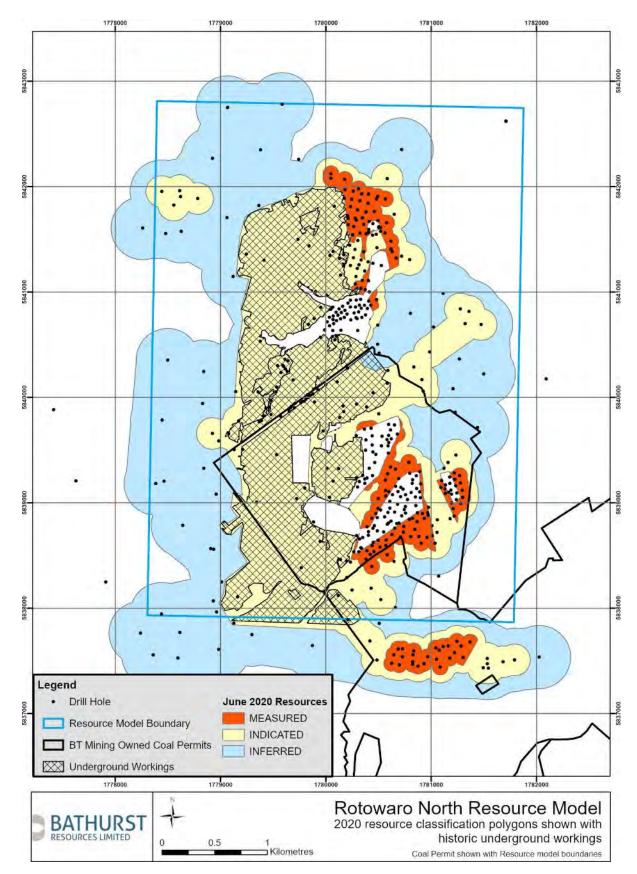


Figure 6: Extent of Underground Workings and Resource classifications

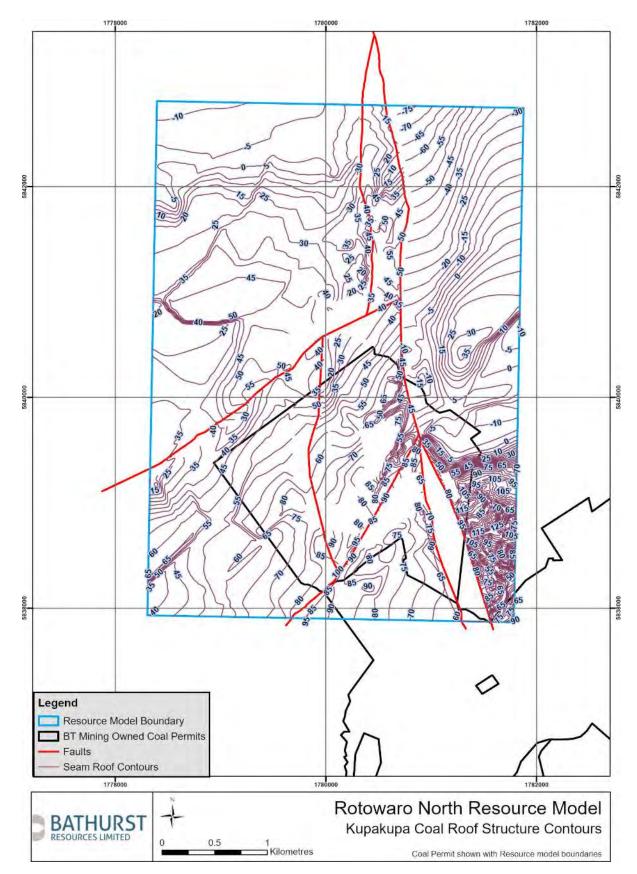


Figure 7: Plan showing the structure contours of coal seam roof

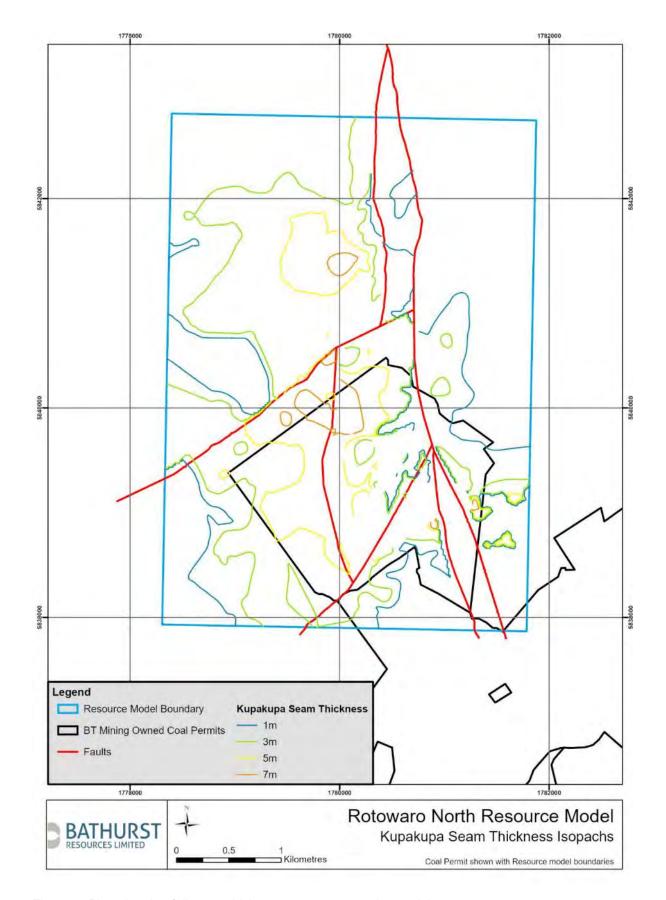


Figure 8: Plan showing full seam thickness contours over the model area

## JORC Code, 2012 Edition - Table 1 Report for Maramarua 2020

Section 1 Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	Multiple campaigns of data acquisition have been carried in the Waikato Coalfield over the past century.  The drillbale database for the resource model area comprises 673 drillbales.
	<ul> <li>The drillhole database for the resource model area comprises 673 drillholes.</li> <li>432 of these drillholes were drilled between 1945 and 1960 and were wash drilled with</li> </ul>
	<ul> <li>432 of these drillholes were drilled between 1945 and 1960 and were wash drilled with chip samples being logged by the driller.</li> </ul>
	<ul> <li>Since 1977, the majority of drillholes have had coal seams cored, with overburden and</li> </ul>
	interburden typically wash drilled. Coal core has been logged by geologists.
	<ul> <li>Sampling of coal core for coal quality testing has been carried out since 1977, typically</li> </ul>
	using HQ (63.5mm diameter) coring techniques.
	<ul> <li>Since 2014 air-core drilling has been used to infill areas to obtain more detailed</li> </ul>
	structural information, complemented by diamond core for reliable coal quality analysis.
	Coal samples are assigned unique IDs and sent to the laboratory with a chain-of-custody and
	are tracked using paper, email and Acquire software. Core recovery recorded in the field is validated and adjusted if required using geophysical density logs during core logging and
	sampling. Composite samples are produced from individual plies that are thickness weighted.
	A suite of geophysical logs including density, natural gamma, calliper, sonic, dipmeter, acoustic
	scanner and verticality have been run in most holes since the late 1970s. All tools are
	calibrated on a regular and systematic basis. All geophysical logging work has been conducted
	by a contractor (Weatherford and its predecessors).
	Ply samples were generally taken over intervals no greater than 0.5m.
Duillina	All analytical data has been assessed and verified before inclusion into the resource model.
Drilling techniques	<ul> <li>Open hole (wash) drilling, with a 4" or 6" tungsten drag bit was typically used to drill through overburden, and triple tube core barrels were used to recover HQ sized (63.5mm diameter)</li> </ul>
,	coal core.
	<ul> <li>In more recent periods, diamond drillholes have been infilled with air-core holes. Air-core</li> </ul>
	samples are logged onsite and provide coal seam roof and floor locations.
	<ul> <li>The 1950s (pre-opencast) drillholes were entirely wash drilled.</li> </ul>
	<ul> <li>Core is not oriented; downhole strata orientations are taken from geophysical logs.</li> </ul>
	A number of historic drillholes are in the database for the areas being modelled. Drillholes that
	have no verifiable location, lithology log or survey, or contradict adjacent reliable data, are
Drill sample	<ul> <li>considered unreliable and are excluded from the resource modelling datasets.</li> <li>Core recovery was measured by the logging geologist for each drillers' run (usually 1.5m) in</li> </ul>
recovery	each drillhole.
-	<ul> <li>In open holes and open hole sections, cuttings are sampled typically at 5m intervals in</li> </ul>
	overburden lithologies, or when there is a change in lithology noted by the driller. Cuttings are
	logged, and stratigraphic logs for these intervals are corrected using geophysical logs.
	• Core was obtained by HQ (63.5 mm) diameter coring techniques, using triple tube operations,
	providing good core recovery (averaging approximately 90%).
	• Recovery standards for target horizons are generally high, at typically greater than 90%. Re-
Logging	drills are required if there is less than 90% recovery in the coal seam.
Logging	<ul> <li>All diamond core samples are logged in a high level of detail, down to a centimetre scale.</li> <li>Quantitative logging for lithology, stratigraphy, texture, hardness, RQD and defects is</li> </ul>
	conducted using defined material code types based on characterisation studies and
	mineralogical assessments. Colour and any other qualitative comments are also recorded.
	Core photography is undertaken on all core samples.
	Wash drill samples are washed in a sieve to leave rock chips, which are quantitatively logged
	by assessing lithology. Samples were photographed.
	Where holes were geophysically logged, the logs were used to confirm and correct geological

# Criteria

#### Commentary

logs. Validation and, if required, correction of geological logs against geophysics is undertaken to ensure accuracy and consistency. Verticality, calliper, density and natural gamma tools are checked regularly with standard calibration assemblies. The density calibrations are performed routinely with blocks of known densities (aluminum and/or water). A geophysical log quality report is generated by the logging technician for each drillhole.

# Sub-sampling techniques and sample preparation

- Sampling and sample preparation were consistent with international coal sampling methodology.
- No splitting of core is undertaken in the field or during sampling. Typically, recovery from triple
  tube coring is greater than 90%. Sample interval and recovery recorded in the field by drillers is
  validated and adjusted if required using geophysics during core logging and sampling. Bagged
  wash drill samples are washed in a sieve to remove drilling mud, leaving rock chips for logging.
  Wash drill samples are not sent to the laboratory for coal quality analysis.
- Sample selection is determined in-house and is documented in a core sampling procedure.
   Clean coal has generally been sampled in 0.5m plies (some thicker plies for older drillholes), depending also on core loss intervals and lithological variations.
- Where potentially high ash coal intervals and partings are noted in core or in geophysical logs, these were sampled separately.
- Samples are placed into labelled bags to ensure proper chain of custody, and then transported to the laboratory for testing. The laboratory continues with the chain of custody requirements. Sample preparation is undertaken according to laboratory and ISO or ATM standards.
- HQ core diameter is considered to provide a sample of sufficient volume to be representative of the in situ material and provides adequate sample mass to undertake the variety of raw coal tests together with composite testing when required.

#### Quality of assay data and laboratory tests

SGS and CRL (ACIRL Australia, Newman Energy and Eurofin ELS Ltd subcontracted for specific tests) laboratories are used to undertake physical and chemical testing and use Industry Standards for all coal tests and systematic QA/QC procedures for all work. Both laboratories hold accreditation by International Accreditation New Zealand (IANZ). The processes employed are considered to be appropriate for coal sample analysis. Results are reviewed in-house to ensure the accuracy of the data by the Project Geologist. The laboratories have been inspected by the Company's personnel. Tests include:

#### **Chemical Analysis**

- Loss on air drying (ISO 13909-4)
- o Inherent moisture (ASTM D 7582 mod)
- o Ash (ASTM D 7582 mod)
- Volatile matter (ASTM D 7582 mod)
- Fixed carbon (ASTM D 7582 mod)
- o Sulphur (ASTM D 4239)
- Swelling index (ASTM D 4239)
- Calorific value (ISO 1928)
- Mean maximum reflectance all vitrinite (RoMax) (laboratory standard)
- Chlorine in coal (ASTM D4208)
- o Gieseler plastometer (ASTM D 2639)
- o Forms of sulphur (AS 1038 Part 11)
- Ash fusion temperatures (ISO 540)
- Ash constituents (XRF) (ASTM D 4326)
- o Ultimate analysis (ASTM D3176-09)

#### Rheological and Physical

- Hardgrove grindability index (ISO 5074, ASTM D409-02)
- Relative density (AS 10382111-1994)
- All samples for CV, sulphur and proximate analysis are split into two samples to provide a duplicate sample. The duplicates are tested with a repeatability level in accordance with the standard method. Reference standards are used to confirm the calibration of each test. The reference standards are plotted daily by the laboratory to correct and biases or trends. The laboratory also participates in external quality control auditing on a regular basis. The results of

#### Criteria Commentary these audits are shared with the Company. Verification of Sample assay results have been cross referenced and compared against lithology logs and sampling and downhole geophysics data. Results are also inspected by experienced geologists and assaying compared with expected values utilising known coal quality relationships for the Waikato Coalfield. Anomalous assay results were investigated and, where necessary, the laboratory was contacted, and a retest undertaken from sample residue. Where holes were geophysically logged, verification of seam details is made through analysis of the geophysics. Otherwise this is done by physical assessment of the core and/or other drillhole samples. Assessments of coal intersections are undertaken by an internal or contract geologist, and by a senior geologist. Geophysics allows confirmation of the presence (or absence) of coal seams and accurate determination of contacts to coal seams. Density measurements are used to guide sampling and identify high ash bands. All diamond core samples are checked, measured and marked up before being logged in a high level of detail. Every discrepancy between the measured length of core and the driller's length marked on the core blocks is investigated and corrected prior to sampling, if necessary. Quantitative logging for lithology, stratigraphy, texture, hardness, RQD and defects is conducted using defined material code types based on characterisation studies and mineralogical assessments to the nearest centimetre. Colour and other additional qualitative comments are also recorded. Raw logs, as well as sample dispatch details, are logged onto paper then transferred into the Acquire database in accordance with Bathurst Standards. Geophysical logs (dual density and gamma) are analysed and used to validate or correct geological and sample interval logs to ensure accuracy and consistency, where required. Sample sheets are developed in-house and receive a final check by the laboratory prior to testing. The Technical Marketing Manager provides guidance on the specific testing regime to be undertaken on both ply and composite samples. Since 2006 all coal quality data has been directly submitted and stored in electronic format using Acquire database software. All data provided by the coal laboratory is reviewed before acceptance into the database. Historic data is stored electronically either in Excel spreadsheets or scanned documents. All coal quality data has been validated and transferred into the Acquire database.

Twin holes have not been used.

### Location of data points

- All drillholes have been surveyed by Company qualified professional surveyors. Drillholes prior to 1997 were surveyed using conventional survey methods with unknown precision. Since 1997, drillhole collars have been surveyed using GPS technology and are located within +/-40mm in three dimensions.
- All Maramarua drillhole collars are surveyed in Mt Eden 1949 coordinate system, with Auckland 1946 mean sea level datum (MSL).
- The topographic dataset consists of a digital terrain model (DTM) constructed from an airborne LiDAR survey (accurate to +/- 0.2m) collected for the whole of the Maramarua site in May 2012. The DTM has been supplemented by GPS survey data (+/- 40mm accuracy) and aerial drone photogrammetric survey.
- Surveyed elevations of drillhole collars are validated against the LiDAR topography and orthocorrected aerial photography.
- Drillholes with downhole geophysics are surveyed for deviation with the verticality tool (+/- 15° azimuth and +/- 0.5° inclination).

#### Data spacing and distribution

- Drillholes are variably spaced (less than 75m to greater than 300m) depending on target seam depth, geological structure, topographical constraints and the degree of existing data density in the immediate surrounds.
- In areas of prospective mining, the average drillhole spacing is 75m or less. Resource estimation is based on the following drillhole spacing:

#### Criteria Commentary Less than 75m = measured 75m - 150m = indicated150m - 300m = inferredThe current drillhole spacing is deemed sufficient for coal seam correlation purposes. A thickness weighted sample composition is run in Vulcan software prior to building the coal quality model. Orientation of In the Maramarua area the strata dips approximately 10° to 15°, although this can increase in data in localised areas, particularly adjacent to faults. All drillholes are designed to intercept the target relation to coal seams or some other key geological structure (i.e. faults). Several inclined drillholes have geological been undertaken to intercept normal faults in the area. Targeted infill drilling is utilised in areas structure of prospective mining to decrease coal quality sample spacing. The low angle of strata dips means vertical drillholes are the most successful in achieving desired high angle intercepts of the coal seams. The modelling of the deposit uses holes both with and without reliable verticality data. Drillholes without verticality data are considered to be vertical. Vertical drilling is considered to be the most suitable drilling method of assessing the coal resource at Maramarua. Sample Core is removed from the borehole and put into core splits. Core is wrapped in clear-wrap to security retain natural moisture and put into core boxes. Additionally, coal core is wrapped in cling film before placing in clear-wrap to assist moisture retention. Core is removed from the clear-wrap at the core logging facility where it is photographed, logged, sampled and then re-wrapped. Sampling was conducted in accordance with the Bathurst Standard 'Coal Quality Sampling and Analysis'. This includes placing samples into labelled bags that are transported directly to the laboratory accompanied by soft and hard copies of the sample submission, to insure proper chain of custody. Chip samples are placed into bags labelled with drilling intervals by the driller and transported to the core logging facility for logging. Chip samples are disposed of once logged. It is not considered likely that individual coal samples face a risk of theft or sabotage as coal is a bulk commodity with little value for small volumes of coal from drill core. All analysis results are input directly from the laboratory into the Acquire database by the project geologist. Audits or BRL (Bathurst Resources) has reviewed the geological data available and considers the data reviews used to produce the resource model is reliable and suitable for the purposes of generating a reliable resource estimate. Integrity of all data (drillhole, geological, survey, geophysical and laboratory information) is reviewed by the resource geologist before being incorporated into the Company's centralised database system. Internal audits are regularly conducted (e.g. at the start of drilling campaigns or when new logging geologists are employed) to verify that samples are being logged and sampled in accordance with Company standards and procedures. All corrections and changes made to the database are recorded.

#### Section 2 Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	<ul> <li>The Maramarua Resource area includes a mixture of Crown and privately owned coal.</li> <li>Coal Mining Permit (CMP) 41821 held by BT Mining Limited (BT Mining) in the Maramarua Coalfield at Kopako comprises 274.3 hectares and was granted on 21 February 2005. It is due to expire 31 March 2037. BT Mining is 65% owned by BRL. Historic Solid Energy mining operations such as the KCQ1, K1 and K2 opencast pits are located within this CMP. The minerals underlying CMP41821 are owned by the Crown, and BT Mining owns or has access to the majority of the land.</li> <li>BT Mining currently leases land adjacent to CMP41821 from the landowners.</li> </ul>

#### Criteria

#### Commentary

## Exploration done by other parties

- The previous owner (Solid Energy NZ Limited) and its predecessors has undertaken all
  exploration in the area from 1986 to 2017. However, there have been earlier periods of work
  that have contributed to the understanding of the Resource. These exploration programmes
  include an extensive wash drilling programme undertaken between 1952 and 1957 prior to the
  commencement of opencast mining.
- The New Zealand Coal Resources Survey drilled 122 holes in the Maramarua Coalfield between 1977 and 1980. The majority of the Coal Resources Survey holes were geophysically logged. The campaign also included two seismic reflection programmes.

#### Geology

- The stratigraphy of the Maramarua Coalfield is similar to that of other northern Waikato coalfields, being dominated by thick, Cenozoic, Te Kuiti Group sediments which unconformably overlie Mesozoic basement rock of the Newcastle Group. The Waikato Coal Measures and later Te Kuiti Group sediments were deposited in a broad north to north-north west trending elongated trough, which appears to have been controlled by structural trends within the underlying Newcastle Group basement rock. The Waikato Coal Measures are present over the entire coalfield with a thickness of up to 134m.
- The Kupakupa main seam (KK) is located near the base of the coal measures, and is the most widespread and thickest seam, ranging from less than 1m to 15m thick. The Kupakupa seam has up to four lower seams (KL1, KL2, KL3, KL4) located 1m to 3m below the main KK seam. These lower seams are discontinuous and generally less than a metre thick. The Kupakupa seam is overlain by carbonaceous shales, siltstones and claystones of the upper Te Kuiti Group.
- The generalised structure of the coalfield dips at 15° north-northwest, flattening out towards the Miranda Fault, due to fault drag effects on the hanging wall. Two major faults dominate the deposit. The Foote Fault zone is interpreted to be a large displacement fault striking north-northeast that is downthrown to the southeast with an estimated throw of 150m. The Miranda Fault is a northeast striking fault, with displacements of up to 60m to the southeast.
- Several other smaller displacement (less than 10 m) faults are interpreted to exist throughout the coalfield, which generally strike parallel to the two major faults. Fault dips have been interpreted to be 65°, based on fault zone intercepts in drillholes.
- The main Kupakupa (KK) seam is low ash, low fixed carbon and very low sulphur coal. There is some evidence of higher phosphorous coal (greater than 0.06% phosphorous in coal) at the base of the KK seam. The coal resource is sub-bituminous C rank.

#### Drillhole Information

• In summary, 772 drillholes are located within the Maramarua area of which 540 of the drillholes have been used for modelling and resource estimation. 25 of these 540 drillholes in the model area were not used as they were considered unreliable.

Range of	Drillhole		Data acquisition		Wash(W)	Reliability
Collar ID	Range	No. of Holes	Structural model only	Coal Quality	Core(C) Air core (AC)	
1945-60	1735-5405	432	432	0	W	Low-Mod
1977-80	8105;9000-9124	95	38	51	W/C	Mod-High
1982- 1984	9131-9160	7	2	5	W/C	Mod-High
1986- 1987	9162-9214	51	28	15	W/C	High
1993- 1994	9215-9248	30	14	26	W/C	High
1996	9249-9252	3	1	0	С	High
1996	9278-9290	13	1	11	W/C	Moderate
2002	9257-9264	3	2	0	W/C	Moderate
2005- 2006	9265- 9268;9272- 9277;9291-9298	14	2	7	W/C	High
2007 and 2012	9299- 9316;9317;9320 -9328	17	0	17	W/C	High

Criteria	Cor	nmentary						
Cinona	001	2008 and 2011	9321- 9322;9303;9323 -9324	5	4	0	W/C	Mod-High
		2014	9329	1	0	1	W/C	High
		2017-18	9342 - 9383	41	41	0	AC	High
		2018	9384 - 9396 17599 - 17605	13 7	11 2	2 5	AC/C AC/C	High
Data	•	2019						High ata preparation for Coa
aggregation methods	•	Resource e The resource Coal ply da Some coal analysis ind analysis. The offs have b	estimation.  ce model is built a  ta is used to grade  composite sample  cluding ash const  hese composite s  een applied, as th	as a block e estimate les for ful ituents, fo amples a ne reporte	model with a e the block m I seam, mina orms of Sulp re not used in ed coal seam	a maximu odel. able section hur, ash n grade e does not	m 0.5m bloons have busion temperation. In this below	ck thicknesses for coal een taken for thorough peratures, and ultimate No seam thickness cut- the minimum thickness than 0.5m thickness).
Relationship between mineralisation widths and intercept lengths	<ul> <li>Due to the stratigraphic nature of coal measures the coal seams generally lie in a horizontal or sub horizontal plane. The Maramarua resource has a dip of 10° to 15° to the north-northwest. Drillholes are generally oriented vertically (90°) and are designed to intercept target seams at as high angle as possible in order for drilled seam thickness to represent true seam thickness as closely as possible. A number of holes have been inclined to target the major fault zones.</li> <li>Drillholes can deviate from the vertical. Drillhole deviation is measured during downhole geophysical logging using the verticality tool and incorporated into modelling workflows.</li> </ul>							
Diagrams	•	o Loca o Geol o Map	can be found in the lation map logical QMap showing coal right showing exploration of resource classions showing Kupakup showing Kupakup showing Kupakup showing Kupakup showing land righ	ts and action drillhotification or roof coor athickness ash disposed sulfur coor actions.	cess les ntour distribu ess contour di tribution distribution	tion		
Balanced reporting		No exploration results are being presented in this report, rather this report is focused on advanced projects that have been defined by geological models with associated resource estimates completed.						
Other substantive exploration data	•	coal mine. Groundwate drillholes in Relative de poor correl density of 1 Geotechnic laboratory t	er has been enco order to monitor of ensity of coal has ation of the ash of .3 t/m³. cal and rock char test data to detern	changes in the changes in the changes in the changes in the change in th	n most drillhon groundwatermined for 4 elationship the sof the over	oles. Piez er levels. 35 sample e resource rburden ers (such	ometers had es from the estimate units have as UCS, showing the content of the co	and existing operating ave been installed in 40 modelled area. Due to is based on a relative been calculated using near box and ring shear ack analysis of existing

Future exploration drilling is proposed to infill spatial gaps in coal quality data and further

delineate fault locations and displacements within the proposed mining areas.

Further work

#### Section 3 Estimation and Reporting of Mineral Resources

Criteria	Commentary
Database integrity	<ul> <li>All historic and legacy datasets have been thoroughly validated against original logs and results tables. Where reliability of the data is poor the data is excluded from the modelling process.</li> <li>Data recorded in the field is input into field books and later transcribed into electronic databases using standard software. All core logging data is recorded on paper than transferred directly into a central database using Acquire software. This software is designed to ensure data is entered and stored in a consistent and accurate manner by using dropdown menus of standard logging codes to prompt and constrain inputs. The database highlights out of range coal quality values, does not allow overlapping intervals nor logs extending beyond total hole depth. Any and all changes to the database are tracked and archived. Data correction and validation checks are undertaken internally before the data is used for modelling purposes.</li> <li>BRL utilises an Acquire database to store and maintain its geological exploration dataset.</li> <li>The Acquire database places explicit controls on certain data fields as they are entered or imported into the database such as overlapping intervals, coincident samples, illegal sample values, standardised look-up tables for logging codes.</li> <li>Validation of historic wash drilled drillholes has been carried out by comparing coal seam depths and thicknesses with those of adjacent more reliable cored drillholes in cross-section. Coal quality data and geophysical logs have been used to validate more recent (post 1977) drillholes, to provide confidence in coal seam depths and thicknesses.</li> </ul>
Site visits	Hamish McLauchlan (the Competent Person) is an employee of BRL and visits the project area on a regular basis.
Geological interpretation	<ul> <li>BRL has confidence in the geological model and the interpretation of the available data. Confidence varies for different areas and this is reflected by the resource classification.</li> <li>A complete update of the model has been completed following review of all data inputs and additional infill new drilling.</li> <li>Confidence in interpretation of geological stratigraphy, structure and seam correlation/continuity is variable across the permit area, and differing seam correlation interpretations exist in some areas. This is typically a result of the complex structural environment, rather than the presence of numerous seam splits and discontinuous seams.</li> <li>BRL considers the amount of geological data sufficient to estimate the resource however an increased data density may increase confidence of some areas.</li> <li>Some residual uncertainty of quality and confidence of historic drilling data remains despite thorough evaluation of the historic logs and drill locations.</li> </ul>
Dimensions	<ul> <li>The Maramarua resources area is approximately 3.1km in length and 1.5km in width, covering approximately 250 hectares. Within this area there are two main areas of focus for future mining – K1 and M1 areas. As discussed above, the coal seams are generally laterally continuous, however thickness can vary over short lateral distances, due to the highly faulted nature of the deposit.</li> <li>The main Kupakupa (KK) seam is the target in this area. Seam thickness ranges from 1m to 15m. Reasonable prospects depth of the seam ranges from 7m to 120m. The KK seam outcrops in the walls of the historic K1 opencast pit and dips at 10° – 15° north-northwest.</li> </ul>
Estimation and modelling techniques	<ul> <li>All available and reliable exploration data has been used to create a geological block model which has been used for resource estimation and classification.</li> <li>All exploration data is stored in Acquire and exported into a Vulcan drillhole database. Mapping data is stored in Acquire and is exported into Vulcan.</li> <li>Interpretive design data is stored within Vulcan in various layers</li> <li>The model is domained further into four fault blocks using the large faults as bounding surfaces.</li> </ul>

Vulcan is used to build the structure model. Grid spacing is 10m x 10m.
Maptek's Integrated Stratigraphic Modeler module is used to produce the structure model. The stacking method is used which triangulates a reference surface and then stacks the remaining

Each domain is modeled for structure and grade separately.

#### **Commentary**

- horizons by adding structure thickness using triangulation.
- Structural surfaces for coal seams, Te Kuiti Group rocks (Pukemiro Sandstone, Glen Afton Claystone, Mangakotuku Siltstone and Whaingaroa Siltstone) and the Waitemata Group roof and floor are modelled using a triangulation algorithm to produce grids on a 10m by 10m basis, in order to best define the structure in the project area.
- Structural surfaces are cropped using a 'mined out' surface to remove material that has been mined.
- Structure grids are checked and validated before being used to construct the resource block model.
- The stratigraphic structure grids for each domain, along with end of month site survey combined with lidar topography surface, and other mining related surfaces are used to build the block model. The block dimensions are constructed at 10m x 10m. The maximum vertical thickness for coal blocks is 0.5m.
- Grade estimation is performed utilizing Vulcan's Tetra Projection Model. Coal quality data is
  modelled using inverse distance block estimation. The estimation is completed over three runs
  for each coal quality parameter with increasing search distances. Estimated block values are
  determined as part of the modelling workflow and are reviewed by a Senior Geologist to ensure
  no anomalies exist and that original data is honoured.
- A 10m by 10m conventional block model is produced. Values assigned to blocks are determined from single grid node values.
- Historic coal winning limits produced following mining of the K1 and K2 and KCQ pits are available, and these have been considered when modelling resource areas.
- Geological interpretation, including the modelling of both major and minor faulting in the area
  has been considered when building structural surfaces. Allowances are made in the surfaces
  for coal loss through fault zones, with the volume of coal loss dependent on the dip and
  displacement of the fault. It is expected other, currently unmapped, minor faults will be
  discovered during mining; with their expected small displacements will result in minimal change
  to the resource estimation.
- No deleterious elements with economic significance have been identified in Maramarua coal.
- Over the past three years, the mine has consistently produced coal products suitable for iron sand metallurgical processing and thermal processing heat. No other by-products have been considered at this stage.
- Validation of data during modelling occurs at four different stages:
  - Firstly, when importing drillhole data from the master Acquire database, to ensure that the original dataset is in order.
  - Structural grids are checked in cross section both along strike and down dip to check the grids are honouring drillhole data.
  - Once structural grids have been produced from drillhole data, the grid nodes are exported and analysed to ensure they honour drillhole data. Contour plans are also produced to ensure modelled values represent original data.
  - Various methods have been used to check the validity of the block estimation. This includes manual inspection of the model, QQ plots of block model qualities vs the coal quality database and other comparison tools.

#### Moisture

 Testing work has been undertaken to determine moisture levels in drillhole core with total moisture and inherent moisture typically being measured. Resource tonnages are reported on an air-dried basis (inherent moisture).

### Cut-off parameters

• The coal has been classified as sub-bituminous C rank and will be marketed as coal products suitable for iron sand metallurgical processing and thermal coal. A maximum ash cut-off of (20% air-dried basis) has been applied to all seams.

## Mining factors or assumptions

- The target (KK) seam is considered suitable for opencast operations due to seam depth, thickness and dip. The selected mining method has been chosen based on long term experience of opencast mining the KK seam. Roof and floor losses are not built into the resource estimate.
- Only coal that falls within an optimized pit shell with revenue factor 0.85 is reported as

Criteria	Commentary
	resources. Costs and revenue parameters used in the pit optimisation are based on the 2020 Maramarua budget and include allowances for royalties, commissions, mining costs, coal processing and administration, and basic mining and processing losses.
Metallurgical factors or assumptions	<ul> <li>The KK seam at Maramarua will provide coal products suitable for iron sand metallurgical processing and thermal coal. This has been determined by past performance of coal from the area for thermal purposes, and by average coal quality values.</li> <li>Studies have been carried out in the past to analyse combustion potential, ash fusion temperatures and Hardgrove Grindability Index, to confirm the suitability of the coal for thermal uses.</li> <li>Currently no wash plant is used at the Maramarua operation. The ROM coal produced is processed through a crushing/screening plant where losses are minimal.</li> </ul>
Environmental factors or assumptions	<ul> <li>At Maramarua, waste rock is transported and stored in an engineered landform to backfill a historic opencast pit. The low sulphur levels in the coal will mean acid mine drainage will not occur.</li> <li>BRL (through BT Mining) hold resource consents regarding land use, air and water quality for the current operations. It is reasonably expected that any modifications to existing agreements or additional agreements required to operate in this area can be obtained in a timely manner.</li> </ul>
Bulk density	<ul> <li>The relative density of the coal within the model is set to1.30t/m³.</li> <li>The bulk density of overburden materials is calculated based on existing relationships in the reserve model.</li> </ul>
Classification	<ul> <li>Coal resources have been classified on the basis of geological and grade continuity balanced by relative uncertainties surrounding proximity to faults and unconformities. The result reflects the Competent Person's view of the deposit.</li> <li>Closely spaced drilling with valid samples increases the confidence for each seam in resource assessments.</li> </ul>
Audits or reviews	<ul> <li>Palaris completed an external review of this estimation in May 2016 as part of Solid Energy's Vendor Due Diligence process. No substantial issues were raised.</li> <li>Several internal reviews have been completed during the various project stages and during purchase due diligence.</li> </ul>
Discussion of relative accuracy/confidence	<ul> <li>Based on the data available, the degree of accuracy of this statement is considered high for the Maramarua resource. Geostatistics and variography, along with best practice where available, to define the Resource estimates provided to confirm search estimation ranges and drillhole spacing for each resource classification.</li> <li>Classical geostatistics were used to understand the available data prior to modelling. This allowed an assessment of the variability of both coal seam thickness and quality parameters. Thickness, ash and sulphur variograms were created to determine any spatial variation present in the data, and to provide suitable confidence categories for the coal resource estimate. The confidence categories are taken from the thickness variogram range values.</li> <li>The Resource is declared as coal in-ground and potentially mineable resources. The current resource model has generally been in line with production data to date. Formal reconciliation is yet to take place as sufficiently sized areas of the pit are yet to be completely mined out.</li> </ul>

### Section 4 Estimation and Reporting of Ore Reserves

Criteria	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul> <li>A 3D Resource Block model of topography, structure and quality are used for in situ Resource definition.</li> <li>Mineral Resources are inclusive of Ore Reserve.</li> </ul>
Site visits	<ul> <li>Damian Spring (the Competent Person) is an employee of BRL and visits the project area on a regular basis.</li> </ul>
Study status	• Maramarua is an operating mine project. The reportable Ore Reserve is based on the life of

Criteria	Commentary
	<ul> <li>mine (LOM) plan and has resulted in a mine plan that is technically achievable and economically viable, and that material modifying factors have been considered.</li> <li>In 2020 the geology and geotechnical models were updated and has resulted in revised reserve pit shells.</li> </ul>
Cut-off parameters	<ul> <li>No additional quality cut-offs have been used in the determination of Reserves in addition to what has been used in the declaration of Resources.</li> <li>Pit optimisation runs were completed to determine economic pit limits.</li> <li>Only the main Kupakupa (KK) seam is reported. Coal of a potentially mineable thickness is present in lower seams but the quality is not well understood and it may not be marketable. This coal has not been considered in the Reserves determination process and is not reported as Reserves.</li> </ul>
Mining factors or assumptions	<ul> <li>Pit limits have been determined using pit optimisation techniques, with restrictions for current land and mineral access. Pit optimisations used current cost and revenue budget assumptions.</li> <li>All mining is via open cut methods. Mining equipment is hydraulic backhoes/mechanical drive rigid body trucks and articulated trucks.</li> <li>Pit slopes for the revised K1 design has been geotechnically assessed and found to be in accordance with BRL stability criteria. The pit design for M1 (formerly known as KCQ2) has not been specifically geotechnically assessed but does use updated site-specific generic design criteria for each rock unit.</li> <li>Coal is present in a thick seam and is easily distinguishable from the surrounding waste rock. Coal quality has been shown to be consistent both laterally and within the seam.</li> <li>No waste dilution has been used in the determination of the Reserves.</li> <li>Coal recovery estimates consist of two parts:         <ul> <li>Minimum recoverable in-situ thickness is 0.5m</li> <li>75mm of coal is assumed lost from both the roof and the floor (150mm in total) during mining to ensure no waste dilution within the coal.</li> </ul> </li> <li>Minimum mining widths are to suit 90t capacity trucks and are typically &gt;50m.</li> </ul>
	<ul> <li>Inferred Resources have not been included in the Reserves.</li> <li>The selected mining method requires simple infrastructure to support mobile open-cut mining equipment (i.e. workshop, fuel farm, site ablution and offices).</li> </ul>
Metallurgical factors or assumptions	<ul> <li>The ROM coal produced at Maramarua is crushed and screened on site. A process recovery of 95% is used based on a processing reconciliation study.</li> <li>Product coal specifications include ash, sulphur, moisture and calorific value.</li> <li>Some parts of the Reserve show the base of the seam with elevated phosphorous levels. This can be effectively blended out within the entire seam thickness, however care will need to be taken not to mine the seam floor as a discrete entity.</li> </ul>
Environmental	<ul> <li>The current planned and operating pits are fully consented.</li> <li>All water related consents are in place.</li> <li>Updating of approvals is an ongoing process and it is reasonably expected that any modifications to existing agreements or additional agreements that may be required can be obtained in a timely manner.</li> </ul>
Infrastructure	All necessary infrastructure is in place and operational for the current operation.
Costs	<ul> <li>All infrastructure is in place at Maramarua. The primary ongoing capital requirements are for equipment replacement and this is included in the economic model.</li> <li>All operating costs were based on the 3-year budget estimates developed by BT Mining and include allowances for royalties, commissions, mining costs, road haulage loading and administration.</li> <li>Contracted product specifications and penalties for failure to meet specification are included in the cost model. Levies and royalties have been applied as per the appropriate NZ legislation (Crown AVR/APR royalty, Mines Rescue Levy and Energy and Resources Levy).</li> </ul>
Revenue factors	<ul> <li>Revenues are as per the current sales contracts.</li> <li>Revenues are based on the as-received calorific value which is in turn determined by the drybasis calorific value of the coal and the total moisture as delivered to the customer.</li> </ul>

Criteria	Commentary
	<ul> <li>Resource model estimates are used to determine the dry calorific value estimates, and actual production calorific value data from the bulk sample deliveries to customers.</li> </ul>
Market assessment	<ul> <li>Annual sales volumes are as per internal market forecasts and within the quantities allowed in long term sales contracts.</li> </ul>
Economic	<ul> <li>To demonstrate the Reserve as economic it has been evaluated as part of the annual budgeting cycle through a standard financial model. All capital, operating and closure costs as well as current sales contract revenue factors were included in the financial model. This model has shown that the Maramarua Reserve has a positive NPV.</li> </ul>
Social	<ul> <li>As part of the resource consenting process and general site operations, regular communication and consultation has taken place with the local communities including the local lwi.</li> </ul>
Other	<ul> <li>All mining projects operate in an environment of geological uncertainty.</li> <li>Updating of approvals is an ongoing annual process and it is reasonably expected that any modifications to existing agreements or additional agreements that may be required can be obtained in a timely manner.</li> </ul>
Classification	<ul> <li>The Reserve coal within the K1 and M1 (formerly known as KCQ) pits has been categorised based on the underlying Resource categories, where Measured Resources have mapped to Proven Reserves and Indicated Resources to Probable Reserves.</li> <li>These categorisations reflect the Competent Person's view of the deposit.</li> </ul>
Audits or reviews	<ul> <li>Palaris completed an external review of this estimation in May 2016 as part of Solid Energy's Vendor Due Diligence process. No substantial issues were raised.</li> <li>Several internal reviews have been completed during the various project stages and during purchase due diligence.</li> <li>A complete update of model has been completed following review of all data inputs and additional infill new drilling.</li> </ul>
Discussion of relative accuracy/ confidence	<ul> <li>The accuracy of the Coal Reserve estimate is primarily dependent on the accuracy of the Coal Resource model, the ability to sell the coal at the estimated prices and the site operating costs.</li> <li>In the opinion of the Competent Person, the modifying factors and long-term cost and revenue assumptions used in the Coal Reserve are reasonable. Some risk is associated with:         <ul> <li>Long term market demand for this coal.</li> <li>Obtaining Resource Consents that are yet to be applied for (M1 pit extension).</li> </ul> </li> <li>The site is in operation but has limited production history and therefore has little current reconciliation data. The KCQ bulk sample pit completed in 2011 mined 68,000t of coal vs an estimated 78,000t at the expected coal quality. This reconciliation was adversely affected by unexpected minor faults within the coal and this has been considered with the new resource model update completed in June 2020 and used to determine these Coal Reserves.</li> </ul>

#### Appendix A:

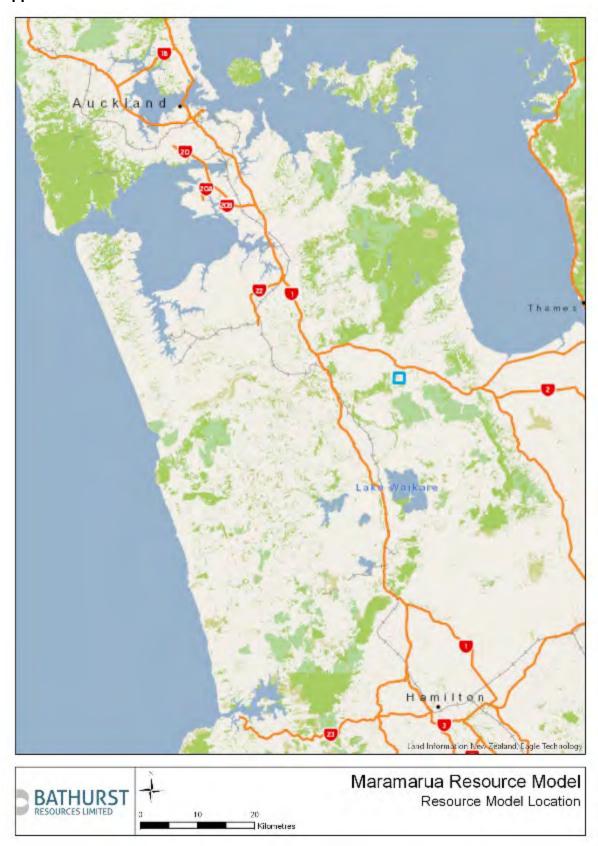


Figure 1: Location Plan

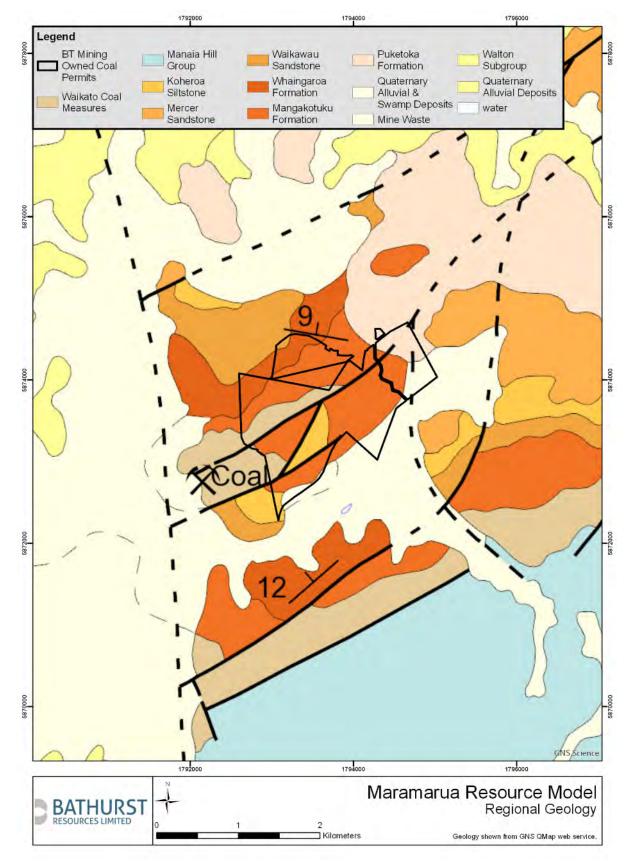


Figure 2: Regional Geology

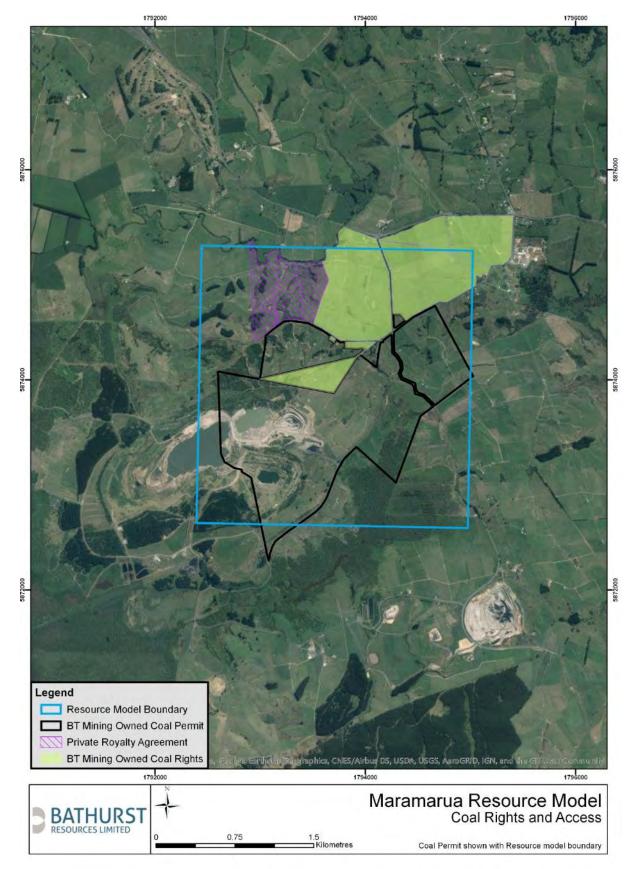


Figure 3: Maramarua and the coal permits within the resource area

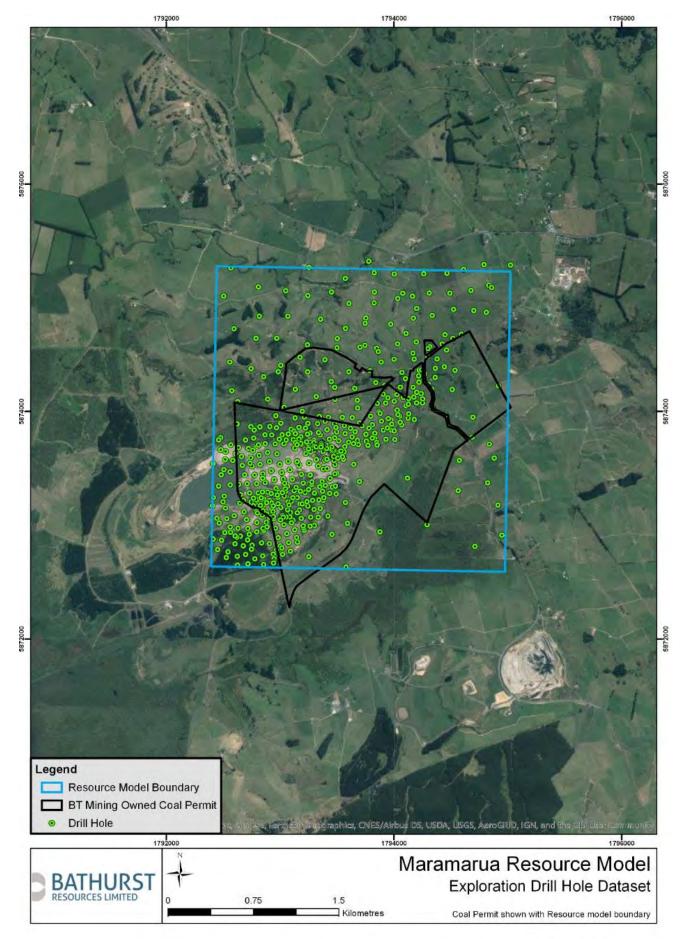


Figure 4: Plan showing the drilling dataset used to produce the resource model

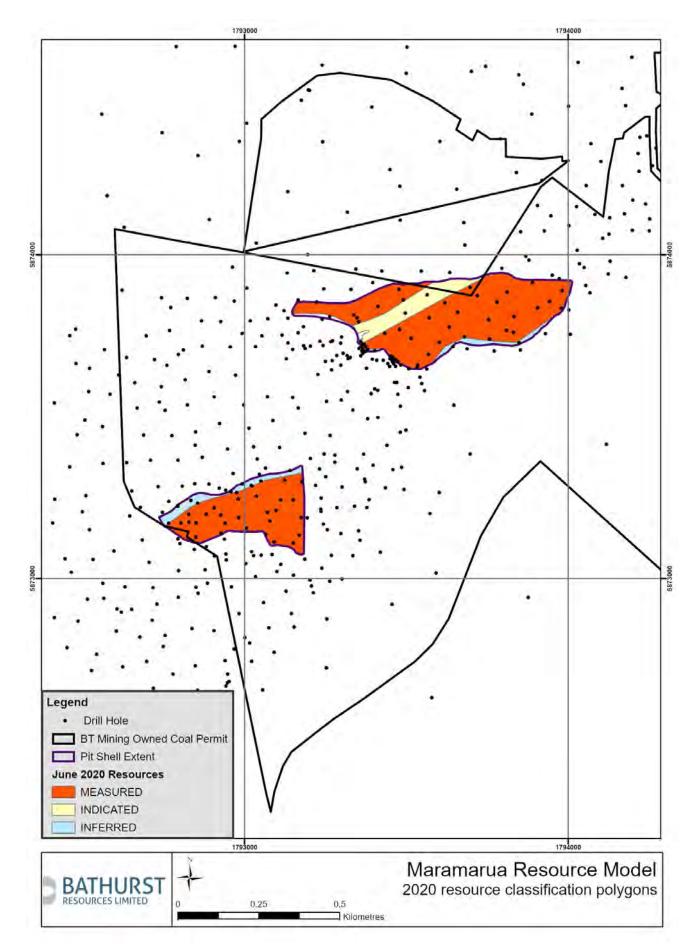


Figure 5: Plan showing the 2020 resource classification polygons

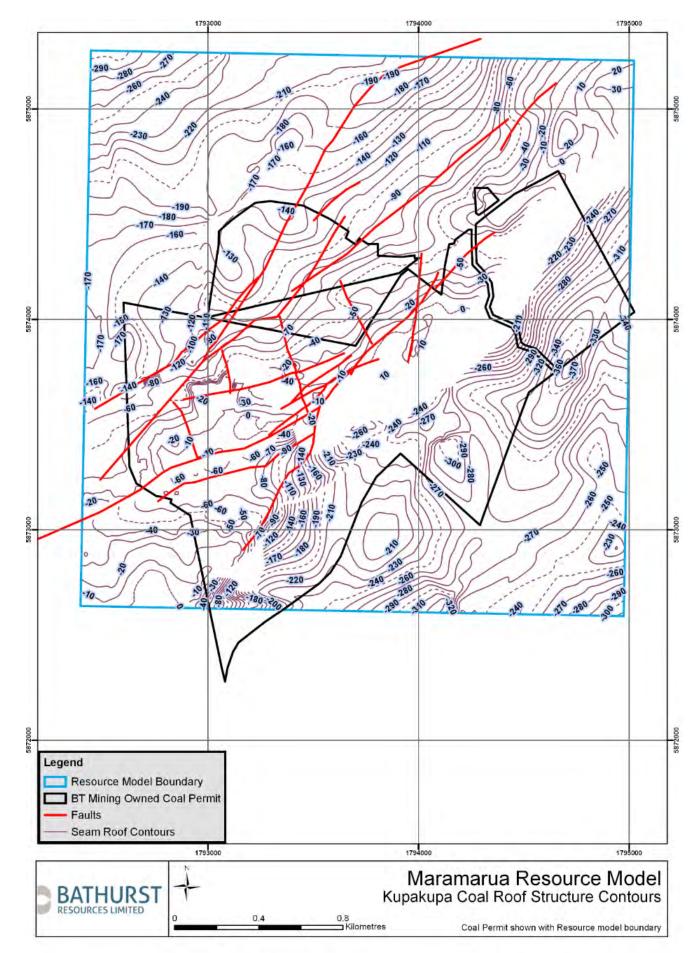


Figure 6: Plan showing the structure contours of the coal seam roof

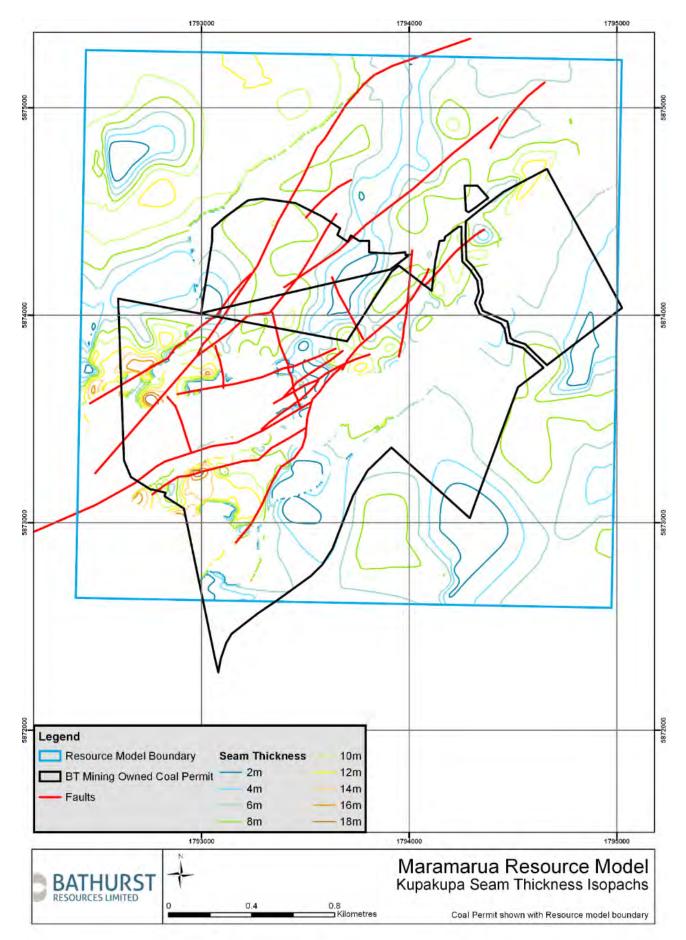


Figure 7: Plan showing full seam thickness contours over the model area



Figure 8: Plan showing in situ full seam ash on an air-dried basis as modelled over the deposit area

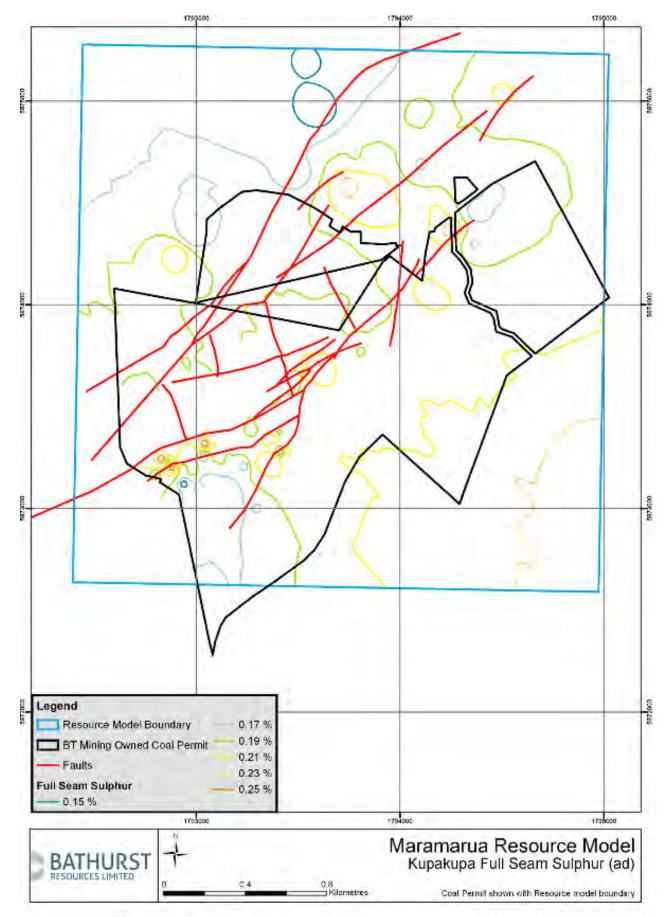


Figure 9: Plan showing full seam sulphur on an air-dried basis across the resource area

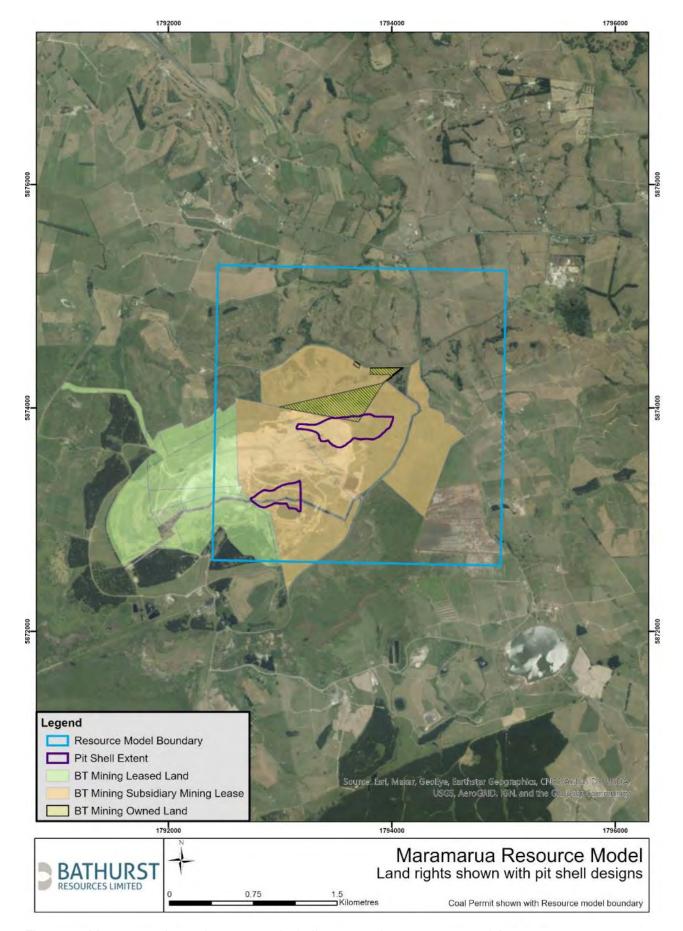


Figure 10: Maramarua domestic reserves pit shell crests and property access rights