## **stanmore**coal



### ASX announcement

29 April 2015

### Belview Coking Coal Project Coal – JORC Upgrade & Exploration Update

### **Highlights**

- Updated JORC Resource<sup>1</sup> Estimate of 330Mt (50Mt Indicated and 280Mt Inferred)
- Coal quality results from the target seams confirm strong coking properties (6.0-8.5 CSN) for the primary coking coal product with a low volatile secondary PCI product resulting in a high overall washed yield
- Pre-Feasibility Study set to commence

Stanmore Coal Limited ("Stanmore" or "the Company") has completed the drilling and associated laboratory analysis of an additional six partially-cored holes within the Belview Project area ("the Project"). Exploration activities were undertaken using funding provided by Taiheiyo Kouhatsu Inc. ("Taiheiyo") supported by the Japan Oil, Gas and Metals National Corporation ("JOGMEC") under the second Exploration Support Agreement. This takes the total number of cored holes at the Belview to 18.

### **Initial JORC Indicated Resource estimate**

This additional exploration has resulted in 50Mt of the Project's JORC Resource being upgraded to Indicated status within the Castor and Pollux seams. These seams are shallowest in the NW region of EPC 1186. Seam thickness within the Indicated Resource averages 2.0 metres for the Castor and 3.0 metres for the Pollux. Raw ash results within the Indicated Resource are favourably low, averaging

1 ASX code: SMR

\_

<sup>&</sup>lt;sup>1</sup> Refer Competent Person Statement Note 1



25.5% for the Castor and 14.1% for the Pollux. The Belview Resource has been assessed as an underground deposit with a minimum seam thickness cut-off of 1.5 metres.

### Further confirmation of attractive coking and PCI coal properties

Coal quality analysis has been conducted on samples from core holes drilled in this program and included within the broader dataset of previous coal quality results announced by the Company. Product specification data sheets have been compiled based on the laboratory results derived from all drilling campaigns to date (refer Appendix A). The Pollux seam forms one of the main underground targets at an average of 3.3m in thickness across the entire resource. Specifications for the Pollux Seam are summarised below and confirm the coal seam properties and characteristics within the Belview Project are typical of the Rangal coking coal measures in the region. The average total laboratory washed yield for the Pollux seam was 79%.

Table 1: Indicative product specification for Pollux seam within Resource area

Parameter		Primary HCC Product	Secondary PCI Product
Product Split	% Mass	61	39
Inherent Moisture	%	1.5	1.7
Ash	% (ad)	6.5	9.5
Volatile Matter	% (ad)	18.8	17.6
Fixed Carbon	% (ad)	73.2	71.2
Total Sulphur	% (ad)	0.41	0.37
Phosphorus	% (ad)	0.06	0.06
Calorific Value	kcal/kg (gad)	7,900	7,620
Crucible Swell Number (CSN)		6-7	1
Vitrinite Reflectance (RoMax)	%	1.50	1.48

As is the case for several other Rangal coal deposits, ensuring a minimum vitrinite content is important to ensure the product displays adequate coking properties. This is achieved by separation at a low density and thus is accompanied by a low ash level (typically 6 - 7.5 % (ad²)). A washed coking coal is likely to exhibit low sulphur (0.4-0.55% ad) and moderate phosphorus (0.07-0.1% ad) with limited plastic properties. Given the correlation with current Rangal coking coals in the market place this coking coal product is well understood and would be readily accepted by steel mill end users.

2 ASX code: SMR

\_

<sup>&</sup>lt;sup>2</sup> Air dried basis



The PCI coal has low-volatile matter, standard ash, low sulphur and moderate phosphorus content. At a typical ash level of 10 - 11 % (ad) the calorific value is regarded as high (~7,500 kcal/kg gad). This calorific value level, along with the high carbon content, indicates a high coke replacement ratio. The variable iron and calcium content in the ash impact the ash fusion temperature. The HGI is high (~80 - 87).

Together these products can be produced at a high overall washed yield, with an achieved laboratory yield for the Pollux seam of 79%. Under certain circumstances a thermal coal product may be produced to replace the PCI product, deriving a moderate ash (20% ad) coal with reasonably high energy content around 6,500 kcal/kg (gad) and attractive HGI of 75-80.

The below table provides a summary of the JORC Resource categories and associated raw coal quality analysis within the Resource area of the Project.

Table 2: Quality weighted average per seam within Resource Area

				Thick			Raw A	ir Dried C	oal Quali	ty (ad)	
Seam		Mass (Mt)	% of total	ness (m)	Insitu RD	Moisture %	Ash %	FC %	% МЛ	% S	CV
Aries	Inf	23	7	1.9	1.50	1.7	21.9	56.9	18.8	0.46	26.6
	Ind	19		2.0	1.51	1.8	25.1	55.3	16.6	0.42	25.3
Castor	Inf	83		2.1	1.52	1.6	25.5	55.8	17.5	0.44	25.2
	Total	102	31	2.1	1.52	1.7	25.5	55.7	17.3	0.43	25.2
	Ind	31		3.0	1.42	1.7	14.1	64.5	18.6	0.39	29.9
Pollux	Ind	128		3.4	1.45	1.5	15.9	63.2	19.2	0.39	29.2
	Total	159	48	3.3	1.44	1.7	15.6	63.4	19.1	0.39	29.3
Gemini	Inf	19	6	5.6	1.42	1.2	13.8	65.0	20.0	0.37	30.2
Pisces Upper	Inf	27	8	2.4	1.47	1.9	20.0	62.1	17.9	0.36	27.4
Total Resource		330	100		1.47	1.6	19.6	60.6	18.5	0.40	27.8

Note: Inf = Inferred; Ind = Indicated; FC = fixed carbon; VM = volatile matter; S = sulphur; CV = calorific value MJ/kg



Map 1 – Drillhole and Seismic Lines Location Plan N 7395000 N 7395000 HUMBOLDT2334 ML1774 OCEANIC COAL AUSTRAĻIA LIMITED BW03 > KWATER113 BLACKWATER79 BW04 OCOBNOO1 BLUFF BLACKWATER109R HIGHWAY COBNOO16 Line Western 2013-05@COBNOOD4 MLA80194 CARABELLA RESOURCES LIMITED CQBN0002 2013-07 EPC1186 MLA 80199 N 7385000 BOW BW8 ML1779 COOK RESOURCE MINING PTY LTD Arthurs Bluff State Forest N 7380000 N 7380000 2013-10 Drainage Roads - Major; Minor Railway MLA 80199 92BW 1 SCB004C EPC1114 & EPC1186 MI - Other 2013-09 Historic Seismic Lines Stanmore 2013 2D Seismic Lines Drillholes SMR Holes (2014/2015) SMR Holes (2014) SMR Holes (2013) BOW (2009-2011) EPC1114 DME (1960-1970) Hematite (1980) MIM (1992) Stanmore (2010) Waratah (2011) 92BW 12 Blackdown Tableland EPC 441 (1989) National Park 0 Minyango (1989) MLA80173 (2011) Insufficient Depth **BELVIEW stanmore**coal MGA94 GDA94 55 EPC 1114 & EPC 1186 N 7370000 2500m 1000 Drillhole and Seismic 1:100.000 Line Location Plan Stc001xBe025.dwg



Map 2 - Pollux Seam Resource N 7395000 N 7305000 ML1774 OCEANIC COAL AUSTRALIA LIMITED CAPRICORN BLUFF Central Western MLAS0194 CARABELLA RESOURCES LIMITED EPC1186 MLA 80199 N 7385000 N 7385000 ML1779 COOK RESOURCE MINING PTY LTD N 7380000 N 7380000 Drainage Roeds - Major, Minor Railway VLA 80199 EPC1114 & EPC1186 EPC1114 ML - Other Fault 800m Depth of Cover Contour Resource Categories Blackdown Tablet National Park indicated Inforred Points of Observation BELVIEW Migrate Dates dos MONSE GOMES SS stanmorecoal EPC 1114 & EPC 1186 N 7370000 2500m 1000 Pollux Seam 1:100,000 Resources



### **Commencement of Pre-Feasibility Study**

Incorporating the latest geological information, the Company plans to undertake a Pre-Feasibility Study in the second half of calendar 2015 to progress the development of the Project. Given the recent softening within the resources sector we anticipate that overall costs have reduced materially below those levels achieved in recent times. In addition to undertaking mining and economic analysis, the Company will continue the gathering of key data required for the Environmental Impact Statement.

Nick Jorss, Stanmore's Managing Director said, "The latest exploration program at Belview has delivered positive results with respect to coal quality and our understanding of the Resource, as evidenced by a significant JORC Indicated Resource. This program was funded by our partners at Taiheiyo Kouhatsu supported by the Japanese Government. We wish to make note of our appreciation for their ongoing support of the Belview Project. The additional drilling data enables us to undertake a timely review of expected capital and operating costs in an environment of significant project cost reductions. The Belview Project is one of the very few independently owned major coking coal projects in the Bowen Basin. The Company remains well positioned for long term success with a strong cash balance, small but experienced team and high quality coal assets in some of Australia's best coal basins."

On behalf of the Board

**Andrew Roach** 

**Company Secretary** 



#### For further information, please contact:

Mr Nick Jorss Managing Director 07 3238 1000 Mr Andrew Roach Company Secretary 07 3238 1000

#### **Note 1: Competent Persons Statement**

The information in this report relating to the Belview Project exploration results and coal resources is based on information compiled by Mr Troy Turner who is a member of the Australian Institute of Mining and Metallurgy and is a full time employee of Xenith Consulting Pty Ltd. Mr Turner is a qualified geologist and 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 Competent Person as defined in the 2012 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Turner consents to the inclusion in the report of the matters based on the information, in the form and context in which it appears.

#### About Stanmore Coal Limited (ASX code: SMR)

Stanmore Coal is a growth focused, pure play coal exploration and development company with a number of prospective coal projects and exploration areas within Queensland's Bowen and Surat Basins. Stanmore Coal is focused on the creation of shareholder value via the identification and development of coal deposits, with a focus on the prime coal bearing regions of the east coast of Australia.

Stanmore Coal Limited ACN 131 920 968

p: +61 (7) 3238 1000 | f: +61 (7) 3238 1098 | e: info@stanmorecoal.com.au | w: www.stanmorecoal.com.au Street address: Level 8, 100 Edward Street, Brisbane QLD 4000 | Postal address: GPO Box 2602, Brisbane QLD 4001



### **Appendix A: Coal Quality Specifications – M Resources Pty Ltd**



### Belview 2014 / 2015 Drilling Program Coking Coal Product

		СОК	ing Co	al Prod	uct		
							Pisces
				Aries	Castor	Pollux	
	Composite Yield	%	(ad)	52.8	33.0	47.9	Upper 34.5
	Inherent Moisture	%	(ad)	1.3	1.3	1.5	1.4
×	Ash	%	(ad)	6.5	8.9	6.6	7.4
PROX	Volatile Matter Volatile Matter	% %	(ad) (daf)	20.8 <b>22.5</b>	19.5 <b>21.8</b>	18.8 <b>20.4</b>	19.0 <b>20.9</b>
	Fixed Carbon	%	(ad)	71.4	70.3	73.1	72.1
	Total Sulfur	%	(ad)	0.50	0.52	0.41	0.41
	CSN Calorific Value	MJ/kg	(a.d)	8.5 32.8	8.0 32.0	6.1 33.0	7.8 32.9
	Calorific Value	kcal/kg	(ad) (ad)	7838	7634	7889	7850
	Calorific Value	kcal/kg	(daf)	8604	8565	8587	8638
	Phosphorus in coal	%	(ad)	0.051	0.083	0.064	0.015
និ	Vitrinite Liptinite	% %	vol. vol.	57 0	51 0	49 0	63 0
PETROGRAPHICS	Inertinite	%	vol.	40	43	48	34
SOGI	Semi-Fusinite	%	vol.	35	34	38	27
PET	Mineral Matter	%	vol.	2	6	3	3
	Rv <sub>max</sub> SiO <sub>2</sub>	%	all vitr.	1.42 55.4	1.47 63.1	1.50 52.6	1.51 61.8
	Al <sub>2</sub> O <sub>3</sub>	%	(db)	18.5	19.3	22.6	19.0
	Fe <sub>2</sub> O <sub>3</sub>	%	(db)	6.9	4.1	11.4	8.7
	CaO	%	(db)	10.6	5.6	4.9	2.7
	MgO	%	(db)	1.32	0.71	1.54	2.41
S	Na <sub>2</sub> O	%	(db)	0.25	0.29	0.30	0.29
4LYS	K <sub>2</sub> O	%	(db)	0.58	0.83	0.97	1.75
ASH ANALYSIS	TiO <sub>2</sub>	%	(db)	1.32	1.20	1.29	1.13
ASH	Mn <sub>3</sub> O <sub>4</sub>	%	(db)	0.05	0.07	0.09	0.06
	P <sub>2</sub> O <sub>5</sub>	%	(db)	1.68	2.08	2.23	0.48
	SO <sub>3</sub>	%	(db)	2.66	2.03	1.29	1.36
	BaO SrO	% %	(db) (db)	0.05 0.08	0.08	0.04 0.09	0.06 0.07
	V <sub>2</sub> O <sub>5</sub>	%	(db)	0.04	0.05	0.03	0.03
	ZnO	%	(db)	0.02	0.02	0.03	0.06
	As	mg/kg			0.20	0.42	0.20
	B Sb	mg/kg mg/kg			5.0 0.31	5.0 0.38	5.0 0.20
	Se	mg/kg			0.20	0.25	0.20
	Hg	mg/kg			0.01	0.01	0.01
	F	mg/kg			202	137	20
	Ba Be	mg/kg mg/kg			69.6 0.63	27.1 0.55	35.0 0.80
	Co	mg/kg			4.9	5.3	6.0
NTS	Cr	mg/kg			6.9	5.2	6.0
RACE ELEMENTS	Cu	mg/kg			15.7	10.8	12.0
명	Li Mo	mg/kg mg/kg			8.7 2	16.5 2	11.0 2
IRAG	Ni	mg/kg			7.6	8.0	4.0
	Sr	mg/kg			70.2	50.4	42.0
	V 7-	mg/kg			24.6 15.9	15.7	19.0
	Zn Mn	mg/kg mg/kg			65.4	19.5 32.4	8.0 77.0
	Cd	mg/kg			0.03	0.02	0.02
	Pb	mg/kg			5.3	5.0	4.6
	Th U	mg/kg mg/kg			1.7 0.48	1.7 0.42	1.7 0.47
	Ge	mg/kg			20	20	20
S	Carbon	%	(ad)	81.7	79.7	82.2	81.3
ULTIMATE ANALYSIS	Hydrogen Nitrogen	% %	(ad) (ad)	4.42 1.74	4.26 1.84	4.29 1.79	4.38 1.81
ANA	Total Sulfur	%	(ad)	0.50	0.52	0.41	0.41
ATE	Oxygen	%	(ad)	2.74	2.80	3.14	2.94
ME	Carbon	%	(daf)	89.7	89.4	89.5	89.5
5	Hydrogen Nitrogen	% %	(daf) (daf)	4.85 1.91	4.78 2.06	4.67 1.95	4.83 2.00
œ	Initial Soft. Temp.	°C		432	432	445	444
ER	Max. Fluidity	°C		468	461	466	462
GIESELER ASTOMETI	Max. Fluidity Max. Fluidity	dd/min log		21 1.3	37 1.4	4 0.5	11 0.8
GIESELER PLASTOMETER	Solidification	°C		490	484	481	482
	Plastic Range	°C		58	52	36	38
NO	Initial Soft. Temp.	°C		410 445	405 463	424 487	420 468
ГАПС	Max. Contraction Max. Dilatation	°C °C		445 0	463 188	487 88	468 328
DILATATION	Max. Contraction	%		16	22	20	27
	Max. Dilatation	%		0	-7	-4	-12
	HGI G Index				96 50	88 37	92 56
	Sapozhnikov Plastomete	er			30	3,	50
	Shrinkage (X)	mm				22	
	PL Max. Thickness (Y)	mm				9	



## Belview 2014 / 2015 Drilling Program SSCC Product

						- "	Pisces
				Aries	Castor	Pollux	Upper
	Composite Yield	%	(ad)	34.9	13.3	31.0	17.3
J	Inherent Moisture Ash	% %	(ad) (ad)	1.4 10.1	1.3 11.8	1.7 9.3	1.6 9.8
PROX	Volatile Matter	%	(ad)	19.5	17.7	17.6	17.6
_	Volatile Matter	%	(daf)	22.0	20.3	19.8	19.9
	Fixed Carbon Total Sulfur	<u>%</u> %	(ad) (ad)	69.0 0.39	69.2 0.45	71.4 0.37	70.9 0.37
	CSN		` '	2.5	1.4	1.1	1.3
	Calorific Value	MJ/kg	(ad)	31.5	31.0	31.9	31.8
	Calorific Value Calorific Value	kcal/kg kcal/kg	(ad) (daf)	7534 <b>8513</b>	7395 <b>8514</b>	7617 <b>8559</b>	7591 <b>857</b> 5
	Phosphorus in coal	%	(ad)		0.085	0.055	0.004
និ	Vitrinite Liptinite	% %	vol.	44	25	28	57
APH.	Inertinite	%	vol. vol.	0 53	0 69	0 68	0 41
PETROGRAPHICS	Semi-Fusinite	%	vol.	48	57	56	33
PETR	Mineral Matter	%	vol.	3	5	4	2
_	Rv <sub>max</sub> SiO <sub>2</sub>	<u>%</u> %	all vitr. (db)	1.36 53.9	1.46 65.3	1.48 52.8	1.49 63.6
	Al <sub>2</sub> O <sub>3</sub>	%	(db)	18.9	19.9	22.6	16.7
	Fe <sub>2</sub> O <sub>3</sub>	%	(db)	6.9	3.8	14.4	13.1
	CaO	%	(db)	13.4	5.1	2.9	0.8
	MgO	%	(db)	1.33	0.77	1.99	2.89
S	Na <sub>2</sub> O	%	(db)	0.19	0.29	0.47	0.33
ILYSI	K <sub>2</sub> O	%	(db)	0.61	0.66	1.00	1.31
ASH ANALYSIS	TiO <sub>2</sub>	%	(db)	0.91	0.94	0.93	0.75
ASH	Mn <sub>3</sub> O <sub>4</sub>	%	(db)	0.04	0.04	0.10	0.07
	P <sub>2</sub> O <sub>5</sub>	%	(db)	0.98	1.64	1.43	0.08
	SO₃ B-O	%	(db)	2.09	1.10	0.86	0.53
	BaO SrO	% %	(db) (db)	0.03 0.10	0.03	0.04	0.06 0.05
	V <sub>2</sub> O <sub>5</sub>	%	(db)	0.10	0.08	0.08	0.03
	ZnO	%	(db)	0.02	0.12	0.02	0.20
	As	mg/kg	(/		0.20	0.28	0.20
	В	mg/kg			5.0	5.2	5.0
	Sb Se	mg/kg mg/kg			0.23 0.20	0.26 0.22	0.20 0.20
	Hg	mg/kg			0.02	0.01	0.01
	F	mg/kg			156	108	20
	Ba Be	mg/kg mg/kg			25.5 0.44	39.3 0.44	63.0 0.50
	Co	mg/kg			2.7	3.4	7.0
RACE ELEMENTS	Cr	mg/kg			4.9	4.5	6.0
EMI	Cu Li	mg/kg			13.2 11.1	8.6 22.3	10.0 13.0
E E	Mo	mg/kg mg/kg			2	2	2
TRA	Ni	mg/kg			4.3	4.1	4.0
	Sr V	mg/kg			76.7 18.1	52.7 13.0	40.0 18.0
	V Zn	mg/kg mg/kg			7.0	6.3	16.0
	Mn	mg/kg			32.6	35.5	53.0
	Cd	mg/kg			0.04	0.04	0.02
	Pb Th	mg/kg mg/kg			4.1 2.1	3.4 1.9	3.0 1.7
	U	mg/kg			0.44	0.41	0.42
	Ge	mg/kg %	(ad)	70.0	20 77.9	20	20 77.7
SIS	Carbon Hydrogen	% %	(ad) (ad)	78.8 4.06	77.8 4.01	80.6 4.07	77.7 4.26
NALY	Nitrogen	%	(ad)	1.56	1.66	1.58	1.76
ULTIMATE ANALYSIS	Total Sulfur	%	(ad)	0.39	0.46	0.37	0.37
MA	Oxygen Carbon	% %	(ad) (daf)	3.67 89.1	3.02 89.5	2.72 90.2	2.85 89.3
E E	Hydrogen	%	(daf)	4.59	4.61	4.55	4.90
	Nitrogen Initial Soft. Temp.	% °C	(daf)	1.76	1.91	1.77	2.02
R	Max. Fluidity	°C			455 460	449 465	445 460
GEISELER PLASTOMETER	Max. Fluidity	dd/min			2	1	2
GEI	Max. Fluidity	log °C			0.3 475	0.1 482	0.3 470
7	Solidification Plastic Range	°C			20	482 32	25
N O	Initial Soft. Temp.	°C			430	435	420
DILATATION	Max. Contraction	°C			496	493	510
DIC	Max. Contraction	%			11	7	22
	HGI	0.0		4470	85	81	87
AFT  reducintg	Deformation Sphere	°C °C		1170 1200	1325 1372	1228 1290	1190 1285
AFT educir	Hemisphere	°C		1220	1392	1324	1328
٤	Flow	°C		1280	1456	1393	1358



## Belview 2014 / 2015 Drilling Program Thermal Product\*

				Aries	Castor	Pollux	Pisces
		0/	( D	00.7	01.5	0.7	Upper
	Composite Yield Inherent Moisture	% %	(ad) (ad)	30.7 1.5	24.5 1.6	9.7 1.6	40.7 1.7
J	Ash	%	(ad)	16.4	21.1	19.8	19.2
PROX	Volatile Matter	%	(ad)	18.6	16.9	17.5	16.3
-	Volatile Matter	%	(daf)	22.7	22.0	22.7	20.7
	Fixed Carbon	%	(ad)	63.5	60.4	61.8	62.7
	Total Sulfur Calorific Value	% MJ/kg	(ad) (ad)	0.43 29.0	0.41 27.2	0.32 27.4	0.33 28.1
	Calorific Value	kcal/kg	(ad)	6928	6486	6550	6704
	Calorific Value	kcal/kg	(daf)	8438	8381	8329	8479
	Phosphorus in coal	%	(ad)	0.078	0.117	0.128	0.015
	SiO <sub>2</sub>	%	(db)	63.7	62.8	48.2	65.4
	Al <sub>2</sub> O <sub>3</sub>	%	(db)	18.6	19.3	20.0	17.8
	Fe <sub>2</sub> O <sub>3</sub>	%	(db)	3.1	4.7	17.6	5.7
	CaO	%	(db)	7.7	5.9	5.8	3.9
	MgO	%	(db)	0.87	0.99	2.21	2.33
<u>s</u>	Na <sub>2</sub> O	%	(db)	0.27	0.36	0.29	0.35
ıLYS	K <sub>2</sub> O	%	(db)	0.99	1.38	1.23	2.26
ASH ANALYSIS	TiO <sub>2</sub>	%	(db)	0.97	0.93	0.90	0.65
SH,	Mn <sub>3</sub> O <sub>4</sub>	%	(db)	0.05	0.10	0.24	0.07
A	P <sub>2</sub> O <sub>5</sub>	%	(db)	1.09	1.12	1.38	0.19
	SO₃	%	(db)	1.89	1.66	1.67	1.20
	BaO	%	(db)	0.19	0.10	0.03	0.06
	SrO	%	(db)	0.06	0.07	0.07	0.08
	V <sub>2</sub> O <sub>5</sub>	%	(db)	0.03	0.03	0.02	0.06
	ZnO	%	(db)	0.02	0.03	0.02	0.06
	As	mg/kg			0.87	0.32	0.20
	В	mg/kg			13.5	12.2	15.8
	Sb Se	mg/kg mg/kg			0.20 0.37	0.23 0.32	0.20 0.26
	Hg	mg/kg			0.05	0.02	27.79
	F	mg/kg			331	238	18
	Ва	mg/kg			92.2	42.1	25.3
	Be	mg/kg			1.38	5.64	2.62
£.	Co Cr	mg/kg mg/kg			7.8 17.5	6.1 10.4	4.5 7.0
TRACE ELEMENTS	Cu	mg/kg			16.9	10.9	6.7
ELEP	Li	mg/kg			17.3	21.6	12.4
4CE	Мо	mg/kg			35.6	99.2	21.1
F	Ni	mg/kg			8.2	4.5	2.0
	Sr V	mg/kg mg/kg			166.9 40.3	145.6 34.0	110.0 22.0
	Zn	mg/kg			12.9	14.5	9.0
	Mn	mg/kg			355.1	352.9	140.0
	Cd	mg/kg			0.05	0.07	0.04
	Pb	mg/kg			8.6	8.2	3.8
	Th U	mg/kg mg/kg			3.6 0.83	3.6 1.00	2.3 0.68
	Ge	mg/kg			20	20	20
<b>'</b>	Carbon	%	(ad)	70.9	67.3	68.3	68.7
LYSIS	Hydrogen	%	(ad)	3.86	3.58	3.52	3.62
NAI	Nitrogen	%	(ad)	1.53	1.43	1.41	1.47
TE A	Total Sulfur Oxygen	% %	(ad) (ad)	0.43 5.40	0.41 4.62	0.32 5.03	0.33 4.15
ULTIMATE ANALYSIS	Carbon	%	(daf)	86.3	87.0	86.9	87.8
ULT	Hydrogen	%	(daf)	4.70	4.64	4.48	4.63
	Nitrogen	%	(daf)	1.86	1.86	1.79	1.88
_	HGI	°C		1270	81	78	74
T	Deformation Sphere	°C		1270 1300	1269 1337	1152 1180	1208 1259
AFT (reducintg)	Hemisphere	°C		1320	1385	1206	1303
<u>=</u>	Flow	°C		1400	1437	1271	1347

Note  $^{*}$  - the thermal composite product is an alternate product to the PCI product. Therefore the yield should be read as additive with the coking product only



### **Appendix B: Table 1 – Xenith Consulting Pty Ltd**



## **JORC CODE, 2012 EDITION – TABLE 1 REPORT**

### **Section 1 Sampling Techniques and Data**

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<ul> <li>Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.</li> </ul>	<ul> <li>For the Stanmore 2010, 2013 / 2014, and 2014 / 2015 exploration programs all coal seams intersected greater than 0.10 m were sampled with a maximum sample length of less than 1.0 m of coal. Coal plies were sampled discretely on the basis of lithological characteristics and quality. All non-coal material and partings less than 0.10 m were included within the coal ply and noted in the lithological description. Non-coal interburden material greater than 0.10 m and up to a maximum of 2.0 m was sampled separately.</li> <li>The immediate 10 m of roof and 5 m of floor have been sampled and retained in core boxes for future geotechnical testing.</li> <li>All coal and roof and floor dilution samples were double bagged at site and marked with sample number, date, hole and project. These were refrigerated on site until geophysical corrections confirmed representative core recovery of the seam and samples. The qualified samples were then transported to the laboratory via courier.</li> <li>Coal Quality samples from the Stanmore Drilling program were sent to Bureau Veritas Laboratories in Brendale, Queensland.</li> <li>All coal quality samples were prepared and analysed using Australian Standard testing methodologies.</li> </ul>
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).	<ul> <li>The 2014 / 2015 exploration program, comprising holes CQBN0011 through to CQBN0018 were partially cored using a HQ size core barrel producing core of 61.1 mm in diameter</li> <li>The 2014 / 2014 exploration program, CQBN0009 and CQBN0010 holes were partially cored using a HQ3 size core barrel producing a 61.1mm core diameter.</li> <li>Coal quality holes for the CQBN 2013 EPC1186 holes were cored</li> </ul>



Criteria	JORC Code explanation	Commentary
		<ul> <li>(partially or fully) using a PQ size core barrel producing an 83.1 mm core diameter. The SCB series which used HQ3 size core producing a hole diameter of 96.1mm for the top of hole with PCD tails at 99.0mm.</li> <li>Non cored holes were use in the model to define structure and stratigraphy but were not used as Points of Observation</li> <li>A full list of drill holes and drilling methods is available at the end of Table 1 in Appendix B – Drill Hole Data.</li> </ul>
Drill sample recovery	<ul> <li>Method of recording and assessing core and chip sample recoveries and results assessed.</li> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.</li> </ul>	<ul> <li>An assessment of core recovery was completed by comparing the recovered thickness measured during geological logging and by the driller, to geophysical picked thicknesses from the geophysical logs.</li> <li>If there was less than 95% core recovery, the competent person made a decision with regards to the representivity of the sample and the decision to redrill was evaluated and discussed with the client.</li> <li>Volumetric analysis of samples was conducted on all Stanmore exploration programs from 2011 SCB series, 2013 CQBN series , 2014 CQBN series, 2015 CQBN series and also for the Waratah 2012 BW series</li> <li>The analysis was based on sample mass received versus expected sample mass derived from sample length by core diameter by apparent Relative Density</li> <li>If sample mass was below 95% a separate exercise interrogating the linear recovery via photos and logs was undertaken to decide whether the sample could be included and not bias the results.</li> </ul>
Logging	<ul> <li>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.</li> </ul>	<ul> <li>All core was geologically logged, marked and photographed before sampling. Geological and geotechnical features were identified and logged.</li> <li>All chip holes were geologically logged.</li> <li>All drill holes have been geophysical logged with a minimum density, calliper, gamma and verticality unless operational difficulties</li> </ul>



Criteria	JORC Code explanation	Commentary
	The total length and percentage of the relevant intersections logged.	<ul> <li>prevented full or partial logging of the drill hole. A full list of the suite of geophysical logs that have been run on each drill hole can be found in Appendix B – Drill Hole Data.</li> <li>The calibration of the geophysical tools was conducted by the geophysical logging company. Coal Seam Wireline services and for holes CQBN0009 to CQBN0018, Weatherfords were used.</li> </ul>
Sub-sampling techniques and sample preparation	<ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul> <li>All core samples were double bagged on site and transported to the Laboratory for testing.</li> <li>Bureau Veritas Laboratories comply with Australian Standards for sample preparation and sub sampling.</li> <li>Large wash samples were pre-treated and dry sized and various sizes before sample splitting and analysis. Proximate analysis was completed on a portion of the original sample where enough sample permitted.</li> <li>For Intermediate Coal analysis, raw proximate analysis values were back calculated from the results of the detailed analysis.</li> </ul>
Quality of assay data and laboratory tests	<ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.</li> </ul>	<ul> <li>Bureau Veritas Laboratories comply with the Australian Standards for coal quality testing and are certified by the National Association of Testing Authorities Australia (NATA).</li> <li>Geophysical tools were calibrated by the logging company Coal Seam Wireline services and for holes CQBN0009 to CQBN0018 Weatherfords.</li> <li>The density measurement is calibrated to precise standards and where possible validated in a calibration hole.</li> </ul>
Verification of	The verification of significant intersections by either independent or	Bureau Veritas Laboratories comply with the Australian Standards



Criteria	JORC Code explanation	Commentary
sampling and assaying	<ul> <li>alternative company personnel.</li> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>	<ul> <li>for coal quality testing and as such conduct the verifications for coal quality analysis outlined in the standards.</li> <li>Coal Quality results were verified by Xenith Personnel before inclusion into the geological model and resource estimate.</li> <li>Product Coal assessment had been undertaken by McMahon Coal Quality Resources and MResources for the earlier programs and MResources for the 2015 exploration program.</li> <li>No adjustments have been made to the Coal quality data.</li> </ul>
Location of data points	<ul> <li>Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>	<ul> <li>Professional Survey of the coal quality boreholes for the Stanmore exploration programs were completed by JTH Surveys Pty Ltd (Tony Lamby – Surveyor) (2015), Wilson Survey Group (2014) T.R. Baillie Consulting Surveyors (2013) and Klau Geomatics (2010).</li> <li>Datum GDA 94 and projection MGAZ55 was used.</li> <li>The topographic surface, topo_060315 was modelled from SRTM. It has been captured with 1 arc-second resolution, equivalent to approximately 30m.</li> </ul>
Data spacing and distribution	<ul> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul> <li>Data Spacing has been deemed sufficient to establish geological and quality continuity for the Indicated and Inferred resources estimated in this report.</li> <li>The inclusion of boreholes from neighbouring areas has given the model a reasonable amount of lateral continuity in all directions.</li> <li>Multiple samples were obtained for some seams within the Belview Project area. As such, where appropriate, sample compositing has been completed. Samples were weighted against sample thickness and insitu RD.</li> </ul>
Orientation of data in relation to geological structure	<ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have</li> </ul>	<ul> <li>Geological structure in the area is aligned with the Jellinbah Fault complex on a northwest to southeast orientation.</li> <li>Five faults (three normal and two reverse), have been interpreted from the 2013 Seismic program and drill hole data from the 2013 program where it was directly intersected.</li> </ul>



Criteria	JORC Code explanation	Commentary
	introduced a sampling bias, this should be assessed and reported if material.	<ul> <li>Faults were only modelled where throws were greater than 10m and seismic sections and modelled surfaces indicated and could confidently be modelled,</li> <li>However, the current drill hole spacing is insufficient to resolve all of the seismic indicated faulting between drill holes.</li> <li>Data points have been obtained on either side of this identified fault where applicable to ensure there is no sampling bias associated with this structure.</li> <li>All drill holes are vertical to intersect the largely flat-lying coal bed stratigraphy.</li> </ul>
Sample security	The measures taken to ensure sample security.	<ul> <li>Sample Security was ensured under a chain of custody between Stanmore Coal personnel on site and Bureau Veritas laboratory and Xenith personnel on site and Bureau Veritas for the 2014 / 2015 exploration program</li> </ul>
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	<ul> <li>Sampling for the 2014 / 2015 drill program was undertaken by personnel contracted to Xenith, with adherence to Xenith guidelines for sampling.</li> <li>Bureau Veritas undertook internal audits and checks in line with the Australian standards and their NATA certification.</li> </ul>



### **Section 2 Reporting of Exploration Results**

(Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code explanation	Commen	tary					
Mineral tenement and	Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint	Tenure Type	Tenure Number	Date Lodged	Date Granted	Date Expires	Principal Holder	Number of Sub blocks
land tenure status	<ul> <li>ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</li> <li>The security of the tenure held at the time of reporting along</li> </ul>	MLa	80199	4-Sep- 2013			Belview Expansion Pty Ltd	
	with any known impediments to obtaining a licence to operate in the area.	EPC	1186	03- Sep- 2007	12- Mar_2008	11- Mar- 2018	Belview Expansion Pty Ltd	23
		EPC	1114	14- Dec- 2006	28-Feb- 2008	27- Feb- 2018	Belview Coal Pty Ltd	30
		<ul> <li>Overlapping tenements:         <ul> <li>EPP1025 - BOW CSG Pty Ltd</li> <li>EPP 806 - OME resources Australia Pty ltd</li> <li>ML1779 - Cook Resources Mining Pty Ltd (this overlaps a strip of the western extent of EPC 1114 and EPC 1186. This would limit resource extraction in this area. This zone has been taken into account when estimating resources in the Belview Project.</li> </ul> </li> <li>Overlying a section of EPC 1114 is state forest "Arthurs Bluff".</li> <li>There are no known impediments to obtaining a licence to operate in the Belview project.</li> </ul>					s would limit n taken into Project.	
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>Exploration drilling completed within and in close proximity to the project has been reviewed as part of this report.</li> <li>Within the lease boundary there are 23 boreholes         <ul> <li>2 Stanmore Coal partially cored drill holes drilled in 2013 and 2014 (CQBN series) (CQBN009 and CQBN0010)</li> <li>7 Stanmore Coal partially cored drill holes drilled in 2013 (CQB</li> </ul> </li> </ul>				n 2013 and		



Criteria	JORC Code explanation	Commentary
		series) (CQBN0005 a redrill of CQBN0003 and CQBN0007 a redrill of CQBN0006)  6 Stanmore Coal partially cored drill holes drilled in 2011 (SCB series) (SCB005P a redrill of SCB005C)  2 BOW gas wells drilled in 2010 - 2012 (BOW series).  6Waratah Holes (BW Series)  An additional 19 boreholes outside of the lease boundary were included to ensure adequate structural control of the resource model:  14 DME historical boreholes drilled in (Blackwater and Humboldt series).  Two BOW gas wells drilled in 2010 - 2012 (BOW series).  Three Hematite Petroleum Pty Ltd gas wells drilled in 1980 (Gemini series).  There are 3 seismic surveys that have been completed over the project area:  A regional 2D seismic survey was undertaken in 2013 by Belview Coal Pty Ltd, with survey lines that transect the Belview project area. The survey were completed by the Bureau of Mineral Resources ('BMR') in 1960 and 1989 respectively and transect EPC1186.  A regional 2D seismic survey was undertaken in 1992 by MIM Holdings Ltd, with survey lines that transect or run adjacent to the Belview Project area. The survey was carried out in two phases and was oriented to intersect the anticipated major fault direction of north to northwest trending structure.
Geology	Deposit type, geological setting and style of mineralisation.	<ul> <li>The Belview Project area lies within the Central Bowen Basin. The Bowen Basin covers an area estimated at 60,000 Km² and is categorised as a back arc extensional foreland basin of Permo–Triassic age.</li> <li>The stratigraphy of the project area includes:         <ul> <li>Quaternary alluvial deposits distributed around the base of the elevated Blackdown tableland Plateau. These sediments are</li> </ul> </li> </ul>



Criteria	JORC Code explanation	Commentary
		comprised of clay, silt and sand, alluvial fans, sheet wash, flood out sheets and alluvial floodplains.  Tertiary aged sediments cover the majority of EPC1186 to the north. These sediments are comprised of deeply weathered coarse sandstone Breccia with a gravel and coarse sand matrix.  Triassic aged Rewan group and Glenidal formation and Expedition sandstone in the elevated areas of the Blackdown Tableland Plateau and underlying the Quaternary and Tertiary sediments of EPC1186 and EPC1114.  Permian aged Rangal coal measures underlie the Triassic aged Rewan group. The Rangal Coal measures are the stratigraphic equivalent of the Bandanna Formation and the Baralaba Coal measures.  The Burngrove formation is beneath the Rangal coal measures and consists of mudstone, siltstone, sandstone, coal and Tuff.  Coal seams occur within the Rangal Coal Measures which are Permian in age and dips gently at approximately 3 – 5 degrees to the east. The coal seams found within the Rangal Coal Measures are as follows:  Aries Seam  Castor Seam  Pollux Seam  Orion Seam  Pisces Seam  At Belview the Gemini seam is found in the south and west of the Project area. The Gemini Seam is found when the Castor and Pollux Seams converge to form one seam.
Drill hole Information	<ul> <li>A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:</li> <li>Easting and Northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in</li> </ul>	<ul> <li>A detailed list of the drill holes used to define the resource in the Belview Project can be found in Appendix B.</li> <li>All drill holes have been modelled from vertical, although hole deviation (from vertical) has been recorded for all boreholes.</li> <li>A review and analysis of the deviation data will be considered in future model</li> </ul>



Criteria	JORC Code explanation	Commentary
	<ul> <li>metres) of the drill hole collar</li> <li>dip and azimuth of the hole</li> <li>down hole length and interception depth</li> <li>Hole length.</li> <li>If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.</li> </ul>	updates
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.</li> <li>Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.</li> <li>The assumptions used for any reporting of metal equivalent values should be clearly stated.</li> </ul>	All seams where multiple coal quality samples were taken were given a composite coal quality value. This composite value was generated within the Ventyx Minescape software and was weighted on thickness and insitu RD. Insitu RD was only weighted against thickness.
Relationship between mineralisation widths and intercept lengths	<ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').</li> </ul>	<ul> <li>The inclusion of boreholes from neighbouring areas has given the model a reasonable amount of lateral continuity in all directions.</li> <li>Resource shapes to the south demonstrates a north south continuity but note further drilling is required to establish continuity to the east.</li> <li>Drill holes have been drilled vertically with minor deviations being recorded. The Permian sequence is relatively flat lying and dips gently to the east at an angle of 3 – 5 degrees. In isolated areas seam dips of 6-8 degrees have been noticed.</li> <li>Seam thicknesses have been corrected to geophysics to ensure accuracy</li> </ul>
Diagrams	<ul> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.</li> </ul>	All appropriate diagrams are contained within the main body of the report –     Stanmore Coal Belview Project Coal Resource Estimate (2015).



Criteria	JORC Code explanation	Commentary
Balanced reporting	Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.	All available exploration data for the Belview Project area has been collated and reported.
Other substantive exploration data	Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.	No further exploration data was gathered and or utilised in the resource estimation.
Further work	<ul> <li>The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul>	No future exploration work has been planned at this stage

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

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.)

Criteria	JORC Code explanation	Commentary
Database integrity	<ul> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul> <li>Data was validated by Stanmore and Xenith personnel and stored in internal databases</li> <li>Coal Quality data was validated by Chris McMahon of MCQR and Ross Stainlay of MResources for the earlier programs and Ross Stainlay of MResources for the 2014 / 2015 program</li> <li>Data is also validated by Xenith and internally by visual checks undertaken in the Minescape Software</li> </ul>
Site visits	Comment on any site visits undertaken by the Competent Person and	• The last Site visit by the competent person was 21 <sup>st</sup> October 2013



Criteria	JORC Code explanation	Commentary						
	<ul> <li>the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul> <li>Troy Turner is familiar with the Blackwater area and stratigraphy.</li> <li>Review of the previous exploration data indicates that the Belview Project is typical of the area.</li> </ul>						
	•	•						
Geological interpretation	<ul> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	<ul> <li>Five faults have been included in the schema for this modelling process FU300_2015, FN_260_ALT, FU296_ALT, FU297_ALT and FR717.</li> <li>No further structure has been interpreted within the EPC lease areas of the Belview Project as drill hole spacing is not sufficient to delineate structure in detail.</li> <li>Seismic surveys have identified other discontinuities interpreted as faulting but the extent and displacement of these is yet to be interpreted</li> <li>The resource estimation process was controlled by the drill hole information attained through the various exploration programs.</li> <li>It is recommended that further drilling and seismic or similar is undertaken to assist with the accurate determination of fault delineation and structural continuity.</li> </ul>						
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	<ul> <li>Grid Spec; Belmar15_50</li> <li>Grid Spacing; 50 m</li> <li>Grid Origin; 694150 east, 7370775 north</li> <li>Number of Row and Columns in Grid; 497 Rows and 378 Columns</li> <li>Grid Dimensions; 24,800 m north south, 18,850 m east west</li> </ul>						
Estimation and modeling techniques	<ul> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation</li> </ul>	<ul> <li>Estimations were undertaken on a first order inverse distance basis</li> <li>Model parameters include:         <ul> <li>Schema;</li> <li>Bel040315</li> <li>Thickness Interpolator; Finite element method (FEM)</li> </ul> </li> </ul>						



Criteria	JORC Code explanation	Commentary
	<ul> <li>method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> <li>Any assumptions behind modelling of selective mining units.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</li> </ul>	<ul> <li>Trend Interpolator; FEM</li> <li>Surface Interpolator; FEM (First Order)</li> <li>Minimum Interval thickness; 0.1 m</li> <li>Seams Modelled; Aries, Castor, Pollux, Pisces Upper and Pisces Lower</li> <li>Seam Relationship; Conformable</li> <li>Seam Continuity; Pinch</li> <li>Compound Seams Modelled; Gemini (Castor and Pollux), Pisces (Pisces Upper and Lower)</li> <li>Compound Seam Continuity; Pinch</li> <li>Compound Seam minimum separation distance for coalescing; 0.5 m</li> <li>Additional Survey; GM_SPLITEXT (interpreted split line limits where Castor and Pollux coalesce to form the Gemini Seam</li> <li>Fault Modelled; FU300_2015, FN260_alt, FU296_alt, FU297_alt, FR717</li> <li>Grid Spec Belmar15_50</li> <li>This Resource Estimate referred to the discrepancies that exist with a previous resource estimate undertaken by Xenith Consulting in 2014 for the target seams within EPC1186 and EPC1114</li> <li>Coal Quality values for each point of observation included at a minimum relative density, inherent moisture and raw ash</li> </ul>
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	<ul> <li>Tonnages are estimated on a insitu moisture basis</li> <li>The moisture content was derived from the following formula. ISM = 0.348 + 1.1431 x MHC using the available moisture holding capacity values from the most recent Stanmore drilling.(ACARP report C10041)</li> </ul>
Cut-off	The basis of the adopted cut-off grade(s) or quality parameters	Maximum raw ash percentage – A maximum raw ash percentage of



Criteria	JORC Code explanation	Commentary
parameters	applied.	<ul> <li>50%, air dried basis, has been applied to the resource estimate.</li> <li>This is a moot point as no value in the limited data attained this cut off.</li> </ul>
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	<ul> <li>It is Xenith's opinion that at this stage of the project that there are no limiting mining factors.</li> <li>It is recognised that the seams in this resource and exploration target, in the east of the project reach the maximum operating depth of current underground mines in Australia and therefore a maximum depth of resource of 800m from topography has been applied.</li> <li>Further to this, a minimum thickness of 1.5m was used across the resource to account for the potential underground mining method. This is seen to be reasonable assumptions in line with current operations.</li> </ul>
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	<ul> <li>It is Xenith's opinion that at this stage of the project that there are no limiting metallurgical factors. Nearby mines produce both thermal and coking coal products from the same seams.</li> <li>The Rangal coal seams encountered in the area demonstrate similar characteristics to the Rangal coals processed in the area, in that they can be processed in a CCP to produce multiple product options.</li> <li>In the project area all seams can be classed as low-volatile bituminous coal. Reflectance ranges from ~1.4 – 1.6 (mmr) depending on depth.</li> <li>A washed coking coal would exhibit low ash, low sulphur, moderate phosphorous and limited plastic properties due to coal rank</li> <li>The coking coal product is well understood in the marketplace</li> <li>The PCI coal is a low to mid-volatile matter, standard ash product, also with low sulphur and moderate phosphorous content.</li> <li>The thermal coal, if produced is high ash but high energy product</li> </ul>



Criteria	JORC Code explanation	Commentary					
		with a high fuel ratio, low sulphur and low nitrogen content.					
Environmental factors or assumptions	<ul> <li>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</li> </ul>	It is Xenith's opinion that at this stage of the project that there are no limiting environmental factors.					
Bulk density	<ul> <li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li> <li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit.</li> <li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li> </ul>	<ul> <li>Preston Sanders Insitu Relative Density Estimation – The insitu density of the coal seams has been estimated using the Preston Sanders insitu relative density estimation equation.</li> <li>Sample were assigned an Insitu moisture value of 3.7%</li> <li>Bed moisture values were derived from the equation ISM = 0.348 + 1.1431 x MHC using the available moisture holding capacity values from the most recent Stanmore drilling.(ACARP report C10041)</li> </ul>					
Classification	<ul> <li>The basis for the classification of the Mineral Resources into varying confidence categories.</li> <li>Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> </ul>	<ul> <li>An Indicated and an Inferred resource has been identified in the project area dependant on the level of confidence in the seam structure and continuity in addition to the level of variability in the coal quality data.</li> <li>The reasonable spacing of the PoBs and homogeneity of the quality are deemed as representative of the seam continuity, as per the coal guidelines</li> </ul>					



Criteria	J	ORC Code explanation	Commentary
Audits or reviews	•	The results of any audits or reviews of Mineral Resource estimates.	• No results for any 3 <sup>rd</sup> party audits or reviews have been completed.
Discussion of relative accuracy/ confidence	•	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.  The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.  These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	<ul> <li>Xenith have assigned an Indicated and Inferred level of confidence to the Coal resource estimate depending on the seam and confidence level, as described in the section 'Resource Estimation' of this report.</li> <li>No geostatistical analysis has been completed.</li> <li>Factors that could affect accuracy include unknown structures between completed boreholes, seam washouts in roof or inseam stone bands developing. A number of faults have been modelled for the project area. Several faults have been interpreted by the 2013 seismic campaign but the nature and extent of these faults is difficult to establish based on the separation distances between relevant data,</li> </ul>



## Appendix A. DRILL HOLE DATA

								Hole					
					Elevatio	Total		size	Core	Geophysical		Azim	
Company	Year	Borehole ID	Easting	Northing	n	depth	Hole Type	(mm)	Diameter	logs	Dip	uth	POB (seams)
Waratah Coal	2011	BW01	698996.0	7389981.0	200.0	512.0	Chip	120.0	-	DGCS	-	-	-
Waratah Coal	2011	BW05	700172.0	7388963.0	200.0	701.0	Chip	-	-	-	-	-	-
Waratah Coal	2011	BW06	702152.0	7390046.0	195.0	765.0	Core	122.6	-	DGCV	34.3	209.4	PL Only
							Partial		HQ				
BOW Energy	2009	BOW_BW_5	698426.0	7390661.0	206.8	626.4	Core	96.1	(63.5 mm)	DGCVS	17.2	90.0	AR,CA,PIU
							Partial		HQ				
BOW Energy	2009	BOW_BW_6	695886.1	7385337.5	173.1	600.3	Core	97.1	(63.5 mm)	DGCVS	8.4	58.0	-
BOW Energy	2010	BOW_BW8	701552.0	7384903.0	231.0	998.0				Nil	-	-	-
							Partial		HQ				
BOW Energy	2010	BOW_BW_7	701715.2	7398404.0	186.8	746.3	Core	97.1	(63.5 mm)	DGCVS	-	-	-
							Partial		HQ				
Stanmore Coal	2011	SCB001C	699251.4	7384866.0	199.7	667.0	Core	96.1	(63.5 mm)	DGC	-	-	AR,GM
							Partial		HQ				
Stanmore Coal	2011	SCB002C	699376.6	7382728.0	234.8	865.4	Core	96.1	(63.5 mm)	DGC	-	-	GM,PIU,PIL
Chammana Caal	2011	SCB003C	C00F70 0	7270565	224.7	010.4	Partial	96.1	HQ (63.5 mags)	DCC			CNA amb
Stanmore Coal	2011	SCBUUSC	698570.0	7379565.5	231.7	910.4	Core Partial	90.1	(63.5 mm) HQ	DGC	-	-	GM only
Stanmore Coal	2011	SCB004C	698406.7	7377540.0	221.2	877.6	Core	96.1	(63.5 mm)	DGC	_	_	GM only
Starring C Cour	2011	ЗСВООЧС	030400.7	7377340.0	221.2	077.0	Partial	50.1	PQ	DGC			Givi Gilly
Stanmore Coal	2011	SCB005P	698399.7	7374327.0	215.1	672.8	Core	122.6	(83.1 mm)	DGC	_	_	_
							Partial		HQ				
Stanmore Coal	2011	SCB005C	698393.3	7374331.0	214.9	702.7	Core	96.1	(63.5 mm)	DGC	-	-	-
Hematite Petroleum Pty							test						
Ltd	1980	GEMINI1	693771.8	7375313.0	220.8	609.6	production	216.0					-
Hematite Petroleum Pty							test						
Ltd	1980	GEMINI4	694139.5	7375277.5	222.4	477.0	production	216.0					-
Hematite Petroleum Pty							test						
Ltd	1980	GEMINI3	694343.9	7375736.5	222.9	492.0	production	216.0					-



								Hole					
					Elevatio	Total		size	Core	Geophysical		Azim	
Company	Year	Borehole ID	Easting	Northing	n	depth	Hole Type	(mm)	Diameter	logs	Dip	uth	POB (seams)
DME	1969	BLACKWATER120	689951.4	7382132.5	193.9	412.9	-	-	-	-	_	-	-
DME	1969	BLACKWATER121	692327.2	7381763.0	183.0	457.2	-	-	-	-	-	-	-
DME	1969	BLACKWATER115	689587.9	7386876.0	179.5	400.0	-	-	-	-	_	-	-
DME	1969	BLACKWATER124	692197.0	7384780.0	183.0	392.2	-	_	-	-	_	-	-
DME	1969	BLACKWATER118	692788.6	7386649.5	180.0	309.9	-	-	-	-	-	-	-
DME	1969	BLACKWATER116	691454.3	7388667.0	191.0	382.7	-	-	-	-	-	-	-
DME	1969	Blackwater NS109R	695535.4	7390706	172	366.34	-	-	-	-	_	-	-
DME	1984	HUMBOLDT2334	696153.2	7394420.0	189.0	406.4	Partial Core		HQ	DGCR	-	-	-
DME	1968	BLACKWATER113	695052.9	7392742.0	168.0	330.0	-	-	-	-	-	-	-
DME	1983	HUMBOLDT2332	694204.5	7395061.0	166.0	326.4	Fully cored		HQ	DGCR	-	-	-
DME	1983	HUMBOLDT2333	695466.4	7396090.5	184.2	363.4	Partial Core		HQ	DGCR	-	-	-
DME	1983	HUMBOLDT2326	693742.7	7396606.0	167.5	292.6	Core		HQ	DGCR	_	-	-
DME	1983	HUMBOLDT2331	698373.3	7397067.0	169.8	423.3	Partial Core		HQ	DGCR	-	-	-
DME	1983	HUMBOLDT2330	696593.3	7397614.0	175.0	260.9	Partial Core		HQ	DGCR	_	_	_
DME	1983	HUMBOLDT2328	696012.0	7399198.0	160.0	258.8	Core		HQ	DGCR	_	-	-
							Partial		PQ (83.1				
Stanmore Coal	2013	CQBN0001	698867.3	7390118.5	209.7	515.6	Core	122.6	mm)	DGCNRIA	-	_	PL Only
Stanmore Coal	2013	CQBN0002	700107.3	7386491.0	204.3	685.0	Partial Core	122.6	PQ (83.1 mm)	DGCNRIA	-	-	AR,CA,PL
Stanmore Coal	2013	CQBN0003	700432.1	7392910.5	190.3	565.0	Partial Core	122.6	PQ (83.1 mm)	DGCNRIA	_	_	CA,PL
							Partial		PQ (83.1				
Stanmore Coal	2013	CQBN0004	702461.2	7389119.1	220.7	847.0	Core	122.6	mm)	DGCNRIA	-	-	CA



Company					Elevatio	Total		Hole size	Core	Geophysical		Azim	
	Year	Borehole ID	Easting	Northing	n	depth	Hole Type	(mm)	Diameter	logs	Dip	uth	POB (seams)
							Partial		PQ (83.1				
Stanmore Coal	2013	CBQN0006	699194.4	7392896.4	195.1	452.0	Core	122.6	mm)	DGCNRIA	-	-	CA, PIU
							Partial		HQ3				
Stanmore Coal	2013	CQBN0009	699208.2	7391298	206.14	503.8	Core	96	(61.1mm)	DGCNRIA	-	-	AR, CA
							Partial		HQ3				
Stanmore Coal	2014	CQBN0010	699483.6	7387536	207.5	648.7	Core	96	(61.1mm)	DGCNRIA	-	-	CA,PL
							Partial		HQ3				
Stanmore Coal	2014	CQBN0011	700106.9	7391293.5	204.1	588.6	Core	96	(61.1mm)	DGVIA	-	-	PL,PIU
							Partial		HQ3				
Stanmore Coal	2014	CQBN0012	699472.4	7393835.0	184.2	456.5	Core	96	(61.1mm)	DGVIA	-	-	CA,PL
							Partial		HQ3				
Stanmore Coal	2014	CQBN0013	699753.5	7392125.1	199.9	480.9	Core	96	(61.1mm)	DGVIA	-	-	CA,PIU
							Partial		HQ3				
Stanmore Coal	2014	CQBN0014	700782.4	7391964.3	201.0	545.9	Core	96	(61.1mm)	DGVIA	-	-	CA,PL,PIU
							Partial		HQ3				
Stanmore Coal	2014	CQBN0015	700311.7	7393818.1	180.6	494.92	Core	96	(61.1mm)	DGCVIA	-	-	CA,PL
							Partial		HQ3				
Stanmore Coal	2014	CQBN0016	699747.7	7390219.9	212.7	588.3	Core	96	(61.1mm)	DGCVIA	-	-	AR,CA,PL,PIU
							Partial		HQ3				
Stanmore Coal	2014	CQBN0017	700115.0	7391293.6	204.3	492.8	Core	96	(61.1mm)	DGCI	-	-	CA
							Partial		HQ3				
Stanmore Coal	2015	CQBN0018	699754.6	7392135.7	200.1	447.7	Core	96	(61.1mm)	DGCI	-	-	PL



## Appendix B. POINTS OF OBSERVATION SUMMARY TABLE

Suitability for Point of Observation By Seam										
Series	Hole Name	Aries	Castor	Pollux	Gemini	Pisces Upper	Pisces Lower	Comment		
					Parent					
					seam			Chip hole unsuitable as Point of		
Waratah	BW01				split			observation		
					Parent					
					seam			Chip hole unsuitable as Point of		
	BW05				split			observation		
		Too thin. Outside			Parent					
		recommended distance for	Good High RD High Ash plies	Acceptable for	seam					
	BW06	resource classification	close enough full Castor	POB	split	No geophysics	No geophysics			
		Good but outside								
		recommended distance for			Parent					
		inferred resource		Too thin due to	seam	Acceptable for	Acceptable for			
Bow Energy	BOW_BW_5	classification	Acceptable for POB	core loss	split	POB	POB			
		Good but outside								
		recommended distance for			Parent	Less than				
		inferred resource			seam	required				
	BOW_BW8	classification			split	thickness of 1.5m		No geophysics no photos		
		Good but outside								
		recommended distance for								
		inferred resource		Parent seam	Faulted					
Stanmore 2011	SCB001C	classification	Parent seam coalesces	coalesces	repeat	No quality data	No quality data			
						Good but outside				
						recommended				
					Accepta	distance for				
		Less than required thickness		Parent seam	ble for	inferred resource	Less than required			
	SCB002C	of 1.5m	Parent seam coalesces	coalesces	POB	classification	thickness of 1.5m			
		Good but outside								
		recommended distance for			Accepta					
		inferred resource		Parent seam	ble for					
	SCB003C	classification	Parent seam coalesces	coalesces	POB	No quality data	No qual			
		Good but outside								
		recommended distance for			Accepta					
		inferred resource		Parent seam	ble for		Less than required			
	SCB004C	classification	Parent seam coalesces	coalesces	POB	No quality data	thickness of 1.5m			



	SCB005C		Hole repeat not correlatable					
	SCB005P		Hole repeat not correlatable					
Stanmore 2013	CQBN0001	Faulted Out	Faulted Out	Acceptable for POB	Parent seam split	Poor recovery no analysis	Poor recovery no analysis	
			Less than required thickness		Parent	Too thin 0.8m		
	CQBN0002	Heat Effected	of 1.5m	Acceptable for POB	seam split	core loss	Too thin core loss	
		Less than required			Parent		Less than required	
	CQBN0003	thickness of 1.5m	Core loss see CQBN0005	Acceptable for POB	seam split	Core loss too thin	thickness of 1.5m	
	CODNIGO 4	Less than required	Assessable for DOD	Too thin due to	Parent	Complement of the	Less than required	
	CQBN0004	thickness of 1.5m	Acceptable for POB	core loss	seam split	Core loss too thin	thickness of 1.5m	
	CQBN0005	Less than required thickness of 1.5m	Redrill of Castor CQBN0003	Not drilled	Parent	Not drilled	Not drilled	
	CQBN0005	UNICKNESS OF 1.5III	Core loss Redrill in	Not urilled	seam split	Not drilled	Not armed	
		Less than required	CQBN0007 acceptable	Core loss see	Parent	Acceptable for	Less than required	
	CQBN0006	thickness of 1.5m	recovery	CQBN0007	seam split	POB	thickness of 1.5m	
	CQBITOUU	Less than required	recovery	Redrill of Pollux	Parent	105	thickness of 1.5m	
	CQBN0007	thickness of 1.5m	Redrill of Castor CQBN0006	CQBN0006	seam split	Not drilled	Not drilled	
				Possible faulting		Possible faulting	Possible faulting	
				Less than required	Did not	Less than required	Less than required	
	CQBN0009	Acceptable for POB	Acceptable for POB	thickness of 1.5m	intersect	thickness of 1.5m	thickness of 1.5m	
		Less than required			Did not			
	CQBN0010	thickness of 1.5m	Acceptable for POB	Acceptable for POB	intersect	Did not intersect	Did not intersect	
					Did not	Acceptable for		
Stanmore 2014	CQBN0011	Did not intersect	Did not intersect	Acceptable for POB	intersect	РОВ	Non Target Seam	
					Did not			
	CQBN0012	No Coal Quality	Acceptable for POB	Acceptable for POB	intersect	Poor Recovery	Non Target Seam	
				Poor Recovery	Did not			
	CQBN0013	No Coal Quality	Acceptable for POB	redrill CQBN0017	intersect		Non Target Seam	
					Did not	Acceptable for		
	CQBN0014	Too thin	Acceptable for POB	Acceptable for POB	intersect	РОВ	Non Target Seam	
					Did not			
	CQBN0015	No Coal Quality	Acceptable for POB	Acceptable for POB	intersect	Poor Recovery	Non Target Seam	
	CQBNOO13	140 Coal Quality	Acceptable for FOB	Acceptable for FOB	Did not	1 ooi necovery	Non rarget Scam	
	CQBN0016	Acceptable for POB	Acceptable for POB	Acceptable for POB	intersect	Poor Recovery	Non Target Seam	
	3420020		Acceptable for POB but		Did not			
	CQBN0017	Not Intersected in core	1.4m thick	Used CQBN0011	intersect	Did not intersect	Did not intersect	Castor Only redrill of CQBN0011
	-			-	Did not			,
	CQBN0018	Not Intersected in Core	Used CQBN0013	Acceptable for POB	intersect	Did not intersect	Did not intersect	Pollux Only redrill of CQBN0013



# Appendix C. REPRESENTATIVE GEOPHYSICS SIGNATURE CQBN0003

