

18 Oct 2023 ASX:BCA

# Drill Results Confirm more Manganese Discoveries from the Balfour Manganese Field

#### **HIGHLIGHTS**

- Further assay results received from the ~7,000m reverse circulation (RC) drill program have confirmed new manganese discoveries at the Pickering and Damsite Prospects within the Balfour Manganese Field.
- Results demonstrate thick manganese enriched shale mineralisation at Pickering and Damsite, with the following significant intersections:
  - o PKRC002 22m @ 12.8% Mn from surface including:
    - 6m @ 16.0% Mn from 7m
  - o PKRC004 19m @ 12.4% Mn from surface including:
    - 7m @ 16.4% Mn from 0m
  - PKRC005 24m @ 13.1% Mn from surface until EOH including:
    - 5m @ 16.4% Mn from 6m
  - o PKRC019 24m @ 11.1% Mn from surface until EOH
  - PKRC024 48m @ 10.9% Mn from surface
  - PKRC032 24m @ 11.5% Mn from surface until EOH
  - o PKRC039 24m @ 11.3% Mn from surface until EOH
- Results confirm the Pickering manganese discovery has a cross strike width of between 300 to 500m and a drilled strike extent of at least 2,000m within a 10km long zone of outcropping manganese enriched shale mineralisation.
- Results confirm the neighbouring Damsite manganese discovery has a cross strike width of 300m, a strike extent of at least 500m and is open to the north.
- Overall geology, grade and thickness are similar to mineralisation at Flanagan Bore where the Company has delineated a Mineral Resource Estimate (MRE) totalling <u>171Mt @ 10.3% Mn</u> at the FB3 and LR1 deposits.<sup>1</sup>
- MRE's for the KR1, KR2, Balfour East and Damsite prospects are expected by the end of the quarter. An Exploration Target will be estimated for the Pickering Prospect.

Telephone: +61 8 9426 0666

Email: info@blackcanyon.com.au

Website: www.blackcanyon.com.au

ASX Code: BCA



Australian manganese explorer and developer, Black Canyon Limited (**Black Canyon** or the **Company**) (**ASX: BCA**) is pleased to announce further discoveries of thick, near surface manganese enriched shales at the Pickering and Damsite prospects within the Balfour Manganese Field (BMF), located in the Pilbara region of Western Australia. The assay results continue to demonstrate widespread manganese mineralisation across multiple targets with several higher-grade intersections reported from surface or near to surface at the Damsite and thick continuous intervals at Pickering.

The program, completed in July 2023, was designed to drill test six targets across Black Canyon's 100% owned tenements within the Balfour Manganese Field (Figure 1) which to date has delivered discoveries at KR1, Balfour East, KR2 and now at Pickering and Damsite.

#### Black Canyon Executive Director, Brendan Cummins, said:

"The Company is extremely pleased with the final assay results received from the Pickering and Damsite targets. The drill program was the culmination of strategic acquisitions and applications over the past 18 months across the Balfour Manganese Field which has paid drill result dividends. Having now received all the assay results from the drill program the grade and scale of the various targets can now be fully appreciated. Our strike rate has been very high with 5 of the 6 targets drilled yielding thick intersections of manganese enriched shale which is testament to the targeting strategy of Black Canyon in this emerging manganese province."

"With the receipt of the final drill results we have commenced Mineral Resources Estimates on 4 of the 6 drill targets. The estimates will enable Black Canyon to examined multiple development options that might include a smaller high purity manganese sulphate (HPMSM) feedstock dedicated operation in addition to larger mine developments for manganese concentrates for the alloying industry, essential for the manufacture of steel. We are starting to appreciate the scale and mineralisation potential of the Balfour Manganese Field. With the delineation of a substantial MRE at Flanagan Bore comprising 171Mt @ 10.3% Mn² and the conclusion of this modest RC drill program the Company can work with a potentially expanded mineral resource foundation to understand project value and potential pathways to production."

"Based on the levels of enquiries in relation to supplying manganese products we are confident that we are building significant value in a commodity that is essential for steel manufacturing and critical for the clean energy transition."

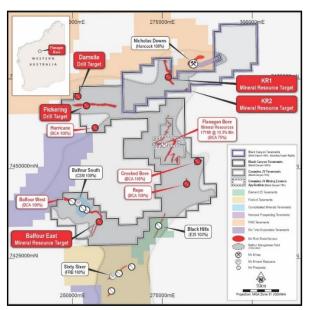


Figure 1. Location of the KR1, KR2, Balfour East, Damsite MRE targets and Exploration Target at Pickering from across the Balfour Manganese Field. Mn shale target horizon (red solid outlines).

<sup>&</sup>lt;sup>2</sup> BCA Announcement 24 November 2022 – Flanagan Bore Mineral Resource Estimate Increased by 64%



#### Pickering and Damsite Discovery - RC Drill Assay Results

A total of 220 holes for 6,927m of drilling were drilled across six target areas. The overall program was designed to drill test multiple targets across Black Canyon's 100% owned tenements within the Balfour Manganese Field. A total of 42 holes for 1038m were drilled into the Pickering and Damsite targets and the results announced today represent all the assays received from drilling into those targets.

At Pickering the Company tested a previously undrilled section of outcropping to subcropping supergene manganese mineralisation using four N-S oriented lines, 400 or 800m apart with drillholes spaced at 100m centres evaluating 2000m of strike. The overall Pickering target can be traced along strike for about 10km so there remains significant potential to complete further drilling to expand the target size.

The mineralised shale at Pickering is between 300 and 500m wide, extending 10m to 48m downhole with a high portion of holes ending in mineralisation. The mineralised horizon is interpreted to be dipping shallowly to the north and strong geological and mineralised continuity is demonstrated along strike over several hundred metres.

At the previously undrilled Damsite target it was tested with three N-S oriented lines, 200m apart with holes spaced at 100m centres evaluating 400m of strike. The mineralisation at Damsite is interpreted to be shallowly dipping to the north and has a cross strike width of about 300m, a strike extent of at least 500m and is open to the north. The drilling is closed off to the east where a north-south fault is interpreted to truncate the mineralised horizon.

Significant results are presented in plans and sections in Figures 2 to 6 and are listed below:

- PKRC002 22m @ 12.8% Mn from surface including:
   6m @ 16.0% Mn from 7m
- PKRC004 19m @ 12.4% Mn from surface including: 7m @ 16.4% Mn from 0m
- PKRC005 24m @ 13.1% Mn from surface until EOH including:
   5m @ 16.4% Mn from 6m
- o PKRC019 24m @ 11.1% Mn from surface until EOH
- o PKRC024 48m @ 10.9% Mn from surface
- PKRC032 24m @ 11.5% Mn from surface until EOH
- PKRC039 24m @ 11.3% Mn from surface until EOH

The drill results reported in this release are downhole widths, and the true width is assumed to be similar as the dip of the mineralisation based on cross sectional interpretation appears to be reasonably flat and dipping to the north.

Results from the July 2023 drill program completed across the Balfour Mineral Field projects are presented in Appendix 1.



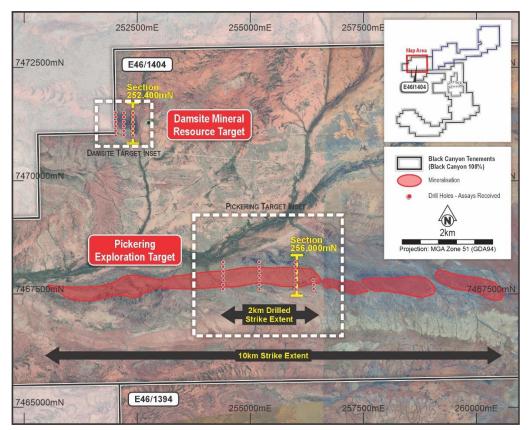


Figure 2. Location map of the Pickering and Damsite targets.

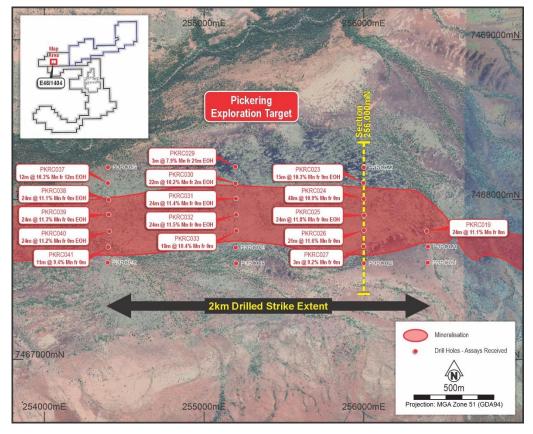


Figure 3. Drill plan, cross-section location and significant results received from Pickering.



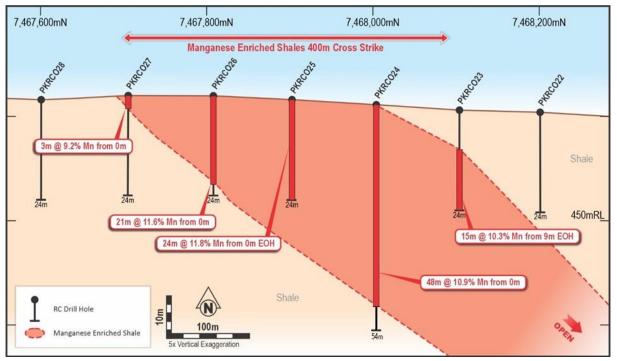


Figure 4. Pickering cross-section 256,000mE (looking to the west) with manganese enriched shale and drill intersections.

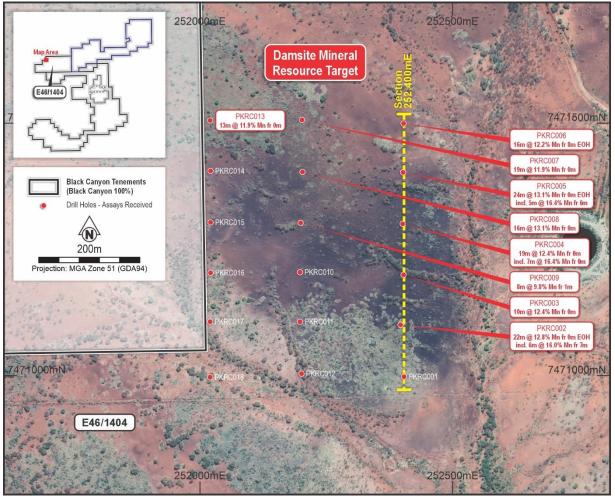


Figure 5. Drill plan, cross-section location and significant results received from Damsite.



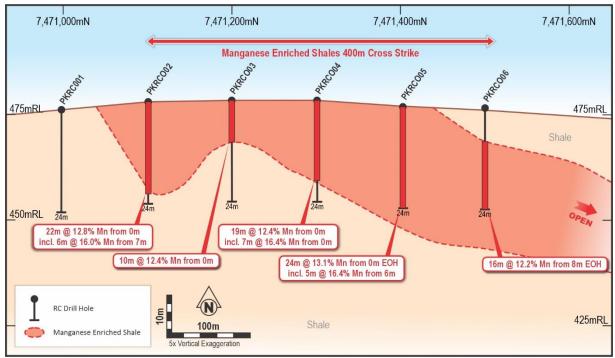


Figure 6. Damsite cross-section 252,400mE (looking to the west) with manganese enriched shale and drill intersections.

#### **Balfour Manganese Field Mineral Resources Estimates (BCA 100%)**

All of the assay results have been received from the KR1, KR2, Balfour East, Damsite and Pickering targets.

The Company is satisfied that the drill data received from the KR1, KR2, Balfour East and Damsite prospects demonstrate geological and grade continuity and the data is being compiled for the estimation of Mineral Resources. The Pickering prospect also showed excellent grade and geology continuity but the 800m spaced drill lines may be too wide spaced for mineral resource estimation but should be appropriate for the estimation of an Exploration Target over the mapped 10km long zone of manganese mineralisation.

Subject to the availability of the Mineral Resource consultant the results are expected towards the end of Q4, 2023.

#### Manganese Oxide HPMSM Feedstock Variability Studies (BCA 100%)

Black Canyon has continued to advance its feedstock variability studies<sup>3</sup> to ascertain the amenability of various manganese ore sources to simple beneficiation, leaching and ultimately producing battery grade HPMSM.

As part of the variability study, material from the KR1 prospect has been leached and yielded a 97% extraction rate. With the completion of the successful leaching process, the KR1 sample has undergone undergoing multistage purification and crystallisation to produce HPMSM. The Company is currently awaiting high precision verification assays and analysis of the results.

The expanded HPMSM strategy is in addition to the ongoing Flanagan Bore activities where the Company has established a **Mineral Resource Estimate of 171 Mt** @ **10.3% Mn**.<sup>4</sup> Flanagan Bore is part of the Carawine JV where Black Canyon has earnt a 75% interest.

<sup>&</sup>lt;sup>3</sup> BCA Announcement 1 June 2023 – Expanded HPMSM testwork yields positive results.

<sup>&</sup>lt;sup>4</sup> BCA Announcement 24 November 2022 – Flanagan Bore Mineral Resource Estimate Increased by 64%



This announcement has been approved by the Board of Black Canyon Limited.

For further details:

**Brendan Cummins Executive Director** 

Telephone: +61 8 9426 0666

Email: brendan.cummins@blackcanyon.com.au

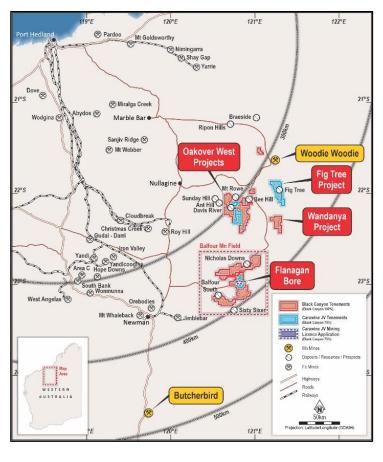
For media and broker enquiries:

Andrew Rowell / Zander Beacham White Noise Communications

Telephone: +61 8 6374 2907

Email: <u>andrew@whitenoisecomms.com</u> zander@whitenoisecomms.com

#### **About Black Canyon**



Black Canyon has consolidated a significant land holding totalling 2,400km² in the underexplored Balfour Manganese Field and across the Oakover Basin, in Western Australia.

emerging potential for the Manganese Field is evident by the size of the geological basin, mineral resources identified to date, distance from port, potential for shallow open pit mining and a likely beneficiated Mn oxide concentrate product grading between 30 and 33% Mn. Black Canyon holds several exploration licenses 100% within the Balfour Manganese Field along with a 75% interest in the Carawine Joint Venture with ASX listed Carawine Α Resources Limited. Mineral Resource (Measured and Indicated) of 171Mt @ 10.3% Mn has been defined at Flanagan Bore which is part of the Carawine JV.5

Manganese continues to have attractive fundamentals where it is essential and non-substitutable in the manufacturing of alloys for the steel industry and a critical mineral in the cathodes of Li-ion batteries.

#### **Compliance Statements**

#### Reporting of Exploration Results and Previously Reported Information

The information in this report that relates to Exploration Results is based on, and fairly represents, information and supporting documentation reviewed by Mr Brendan Cummins, Executive Director of Black Canyon Limited. Mr Cummins is a member of the Australian Institute of Geoscientists, and he has sufficient experience which is relevant to the style of mineralisation and type of deposits under consideration and to the activity which has been undertaken 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 Cummins consents to the inclusion in this release of the matters based on the

<sup>&</sup>lt;sup>5</sup> BCA Announcement 24 November 2022 – Flanagan Bore Mineral Resource Estimate Increased by 64%



information in the form and context in which they appear. Mr Cummins is a shareholder of Black Canyon Limited.

For further information, please refer to ASX announcements dated 17 May 2021, 10 June 2021, 7 July 2021, 5 October 2021, 4 January 2022, 8 February 2022, 21 February 2022, 2 March 2022, 23 March 2022,13 April 2022, 9 June 2022, 7 September 2022, 15 September 2022, 11 October, 21 & 24 November 2022, 5 December 2022, 28 December 2022, 14 February 2023, 27 March 2023, June 1 2023, June 1 2023, June 17 2023, July 14 2023, 23 August 2023, 5 September 2023, 26 September 2023 and 12 October 2023 which are available from the ASX Announcement web page on the Company's website. The Company confirms that there is no new information or data that materially affects the information presented in this release that relate to Exploration Results and Mineral Resources in the original market announcements.

Appendix 1. Balfour Manganese July 2023 drill collar information and assay results

NSR - No Significant Intersect

HOLE ID	PROSPECT	E_GDA94	N_GDA94	RL	ЕОН	DIP	AZIMUTH	FROM (m)	TO (m)	THICKNESS (m)	Mn (%)	Fe (%)	DRILL INTERSECTIONS
KRRC001	KR1	277011	7475082	514.5	30	-90	360						NSR
KRRC002	KR1	276899	7475104	521	30	-90	360	0	1	1	14.8	12.3	1m @ 14.8% Mn & 12.3% Fe from 0m
KRRC003	KR1	276814	7475097	524.5	30	-90	360	0	12	12	14.2	10.7	12m @ 14.2% Mn & 10.7% Fe from 0m
KRRC004	KR1	276702	7475101	520.5	30	-90	360	3	19	16	15.1	10.9	16m @ 15.1% Mn & 10.9% Fe from 3m
KRRC005	KR1	276603	7475098	518.8	42	-90	360	11	33	22	13.3	10.8	22m @ 13.3% Mn & 10.8% Fe from 11m
KRRC006	KR1	276493	7475098	514.8	42	-90	360	8	32	24	13	8.7	24m @ 13% Mn & 8.7% Fe from 8m
KRRC007	KR1	276399	7475104	512.7	42	-90	360	26	34	8	7	9.9	8m @ 7% Mn & 9.9% Fe from 26m
KRRC008	KR1	276302	7475103	512.2	24	-90	360						NSR
KRRC009	KR1	276101	7475104	511.2	36	-90	360	4	31	27	11.8	8.5	27m @ 11.8% Mn & 8.5% Fe from 4m
KRRC010	KR1	275900	7475105	509.5	36	-90	360	15	36	21	9.6	8.3	21m @ 9.6% Mn & 8.3% Fe from 15m until EOH
KRRC011	KR1	275704	7475103	508	42	-90	360	28	42	14	8.9	7.7	14m @ 8.9% Mn & 7.7% Fe from 28m until EOH
KRRC012	KR1	277003	7475301	513.6	24	-90	360			0			NSR
KRRC013	KR1	276899	7475304	516.5	24	-90	360	0	6	6	9.6	7	6m @ 9.6% Mn & 7% Fe from 0m
KRRC014	KR1	276801	7475304	522	24	-90	360	0	15	15	12.9	8.7	15m @ 12.9% Mn & 8.7% Fe from 0m
KRRC015	KR1	276702	7475302	516	24	-90	360	7	15	8	10.5	15.2	8m @ 10.5% Mn & 15.2% Fe from 7m
KRRC016	KR1	276602	7475303	513.8	36	-90	360	4	27	23	10.4	8.9	23m @ 10.4% Mn & 8.9% Fe from 4m
KRRC017	KR1	276512	7475305	512.2	30	-90	360			0			NSR
KRRC018	KR1	276401	7475305	510.8	54	-90	360	31	48	17	9.3	7.7	17m @ 9.3% Mn & 7.7% Fe from 31m
KRRC019	KR1	276204	7475304	509	30	-90	360			0			NSR
KRRC020	KR1	276000	7475303	507.3	24	-90	360	8	12	4	9.8	9.5	4m @ 9.8% Mn & 9.5% Fe from 8m
KRRC021	KR1	275805	7475306	505.8	54	-90	360	31	53	22	9.2	7.7	22m @ 9.2% Mn & 7.7% Fe from 31m
KRRC022	KR1	277102	7473300	512.1	30	-90	360	31	33	0	3.2	7.7	NSR
KRRC023	KR1	276911	7474901	516	30	-90	360			0			NSR
KRRC023	KR1	276796	7474901	519.4	24	-90	360	0	3	3	19.2	11.5	3m @ 19.2% Mn & 11.5% Fe from 0m
KRRCU24	KKI	2/6/96	7474903	519.4	24	-90	360	U	3	3	19.2	11.5	15m @ 18.6% Mn & 14.1% Fe from 2m until
KRRC025*	KR1	276697	7474904	520	17	-90	360	2	17	15	18.6	14.1	EOH including 7m @ 26% Mn from 10m
KRRC026*	KR1	276703	7474906	521	30	-90	360	4	18	14	18.3	14.3	14m @ 18.3% Mn & 14.3% Fe from 4m
KRRC027	KR1	276600	7474909	521.5	42	-90	360	11	34	23	12.2	8.7	23m @ 12.2% Mn & 8.7% Fe from 11m including 4m @ 18.4% Mn from 12m
KRRC028	KR1	276505	7474910	520	48	-90	360	17	39	22	12.2	8.8	22m @ 12.2% Mn & 8.8% Fe from 17m
KRRC029	KR1	276404	7474310	518.3	54	-90	360	26	42	16	10.9	9.7	16m @ 10.9% Mn & 9.7% Fe from 26m
KRRC030	KR1	276203	7474996	515.5	24	-90	360	20	42	0	10.9	3.7	NSR
				313.3	24		300						10m @ 15.2% Mn & 11.6% Fe from 15m
KRRC031	KR1	276001	7474906	513	30	-90	360	15	25	10	15.2	11.6	including 4m @ 18% Mn from 15m
KRRC032	KR1	275801	7474852	509.9	36	-90	360	21	36	15	10.8	9.2	15m @ 10.8% Mn & 9.2% Fe from 21m until EOH
KRRC033	KR1	276294	7474903	516	30	-90	360			0			NSR
KRRC034	KR1	276703	7474703	517.7	30	-90	360	6	8	2	25.1	8	2m @ 25.1% Mn & 8% Fe from 6m
KRRC035	KR1	276501	7474703	519.2	24	-90	360	1		0	1		NSR
KRRC036	KR1	276303	7474703	518.6	24	-90	360			0			NSR
KRRC037	KR1	276102	7474703	515.5	18	-90	360			0			NSR
KRRC038	KR1	275903	7474701	514.6	18	-90	360			0			NSR
KRRC039	KR1	275696	7474699	511.1	18	-90	360			0			NSR
KRRC040	KR1	276005	7474033	506.7	24	-90	360	1		0			NSR
KRRC040 KRRC041	KR1	276207	7475500	507.5	30	-90	360	<del>                                     </del>		0			NSR
KRRC041 KRRC042	KR1	276400	7475300	509	18	-90	360	<del>                                     </del>	<b>-</b>	0	<b> </b>	<b>-</b>	NSR
KRRC042 KRRC043	KR1	276500	7475502	510.5	18	-90	360	1		0	<b> </b>		NSR
KRRC043	KR1	276594	7475302	510.5	24	-90	360	1		0	<b> </b>		NSR
KRRC044 KRRC045	KR1	276594		511.5	36	-90 -90	360	9	29	20	11.4	9.1	20m @ 11.4% Mn & 9.1% Fe from 9m
			7475503								11.4		20m @ 11.4% Mn & 9.1% Fe from 9m 22m @ 12.2% Mn & 9.4% Fe from 1m
KRRC046	KR1	276808	7475501	517	30	-90	360	1	23	22	12.2	9.4	including 3m @ 18% Mn from 1m
KRRC047	KR1	276897	7475498	515.5	24	-90	360	0	13	13	10	7.4	13m @ 10% Mn & 7.4% Fe from 0m
KRRC048	KR1	277004	7475487	512	18	-90	360			0			NSR
BSRC001	BW	248602	7441203	463	54	-90	360			0			NSR



1									1 1	1	1	1	
NSR			0			360	-90	54	463	7441298	248589	BW	BSRC002
NSR NSR			0			360 360	-90 -90	84 72	463 463	7441405 7441506	248602 248601	BW BW	BSRC003 BSRC004
NSR			0			360	-90	66	463	7441506	248600	BW	BSRC004 BSRC005
NSR			0			360	-90	60	463	7441000	248601	BW	BSRC006
NSR			0			360	-90	54	463	7441100	248601	BW	BSRC007
NSR			0			360	-90	40	463	7441808	248606	BW	BSRC008
NSR			0			360	-90	42	463	7441903	248605	BW	BSRC009
NSR			0			360	-90	36	463	7441704	248799	BW	BSRC010
NSR			0			360	-90	42	463	7441806	248801	BW	BSRC011
NSR			0			360	-90	42	463	7441907	248800	BW	BSRC012
NSR			0			360	-90	48	463	7441999	248799	BW	BSRC013
NSR			0			360	-90	42	463	7441902	248997	BW	BSRC014
1m @ 11.8% Mn & 13.4% Fe from 2m	13.4	11.8	1	3	2	360	-90	42	463	7441799	248999	BW	BSRC015
4m @ 13.3% Mn & 13.5% Fe from 0m	13.5	13.3	4	4	0	360	-90	42	463	7441690	248998	BW	BSRC016
NSR			0			360	-90	36	463	7441303	248200	BW	BSRC017
NSR			0			360	-90	36	463	7441398	248208	BW	BSRC018
NSR			0			360	-90	36	463	7441502	248202	BW	BSRC019
NSR			0			360	-90	36	463	7441603	248207	BW	BSRC020
NSR			0			360	-90	36	463	7441697	248203	BW	BSRC021
NSR			0			360	-90	36	463	7441804	248203	BW	BSRC022
NSR			0			360	-90	36	463	7441900	248202	BW	BSRC023
NSR NSR			0			360 360	-90 -90	40 48	463 463	7441410 7441610	247800 247800	BW BW	BSRC024 BSRC025
NSR NSR			0			360 360	-90 -90	48 36	463 463	7441610	247800	BW	BSRC025 BSRC026
NSR NSR			0			360	-90 -90	36	463 463	7441804	247804	BW	BSRC026 BSRC027
3m @ 11% Mn & 16.9% Fe from 0m	16.9	11	3	3	0	360	-90	36	463	7442001	247801	BW	BSRC027 BSRC028
4m @ 9.7% Mn & 19.8% Fe from 2m	19.8	9.7	4	6	2	360	-90	40	463	7441704	249200	BW	BSRC029
NSR	15.0	3.7	0	Ů		360	-90	36	463	7441804	249398	BW	BSRC030
1m @ 12.2% Mn & 13.4% Fe from 0m	13.4	12.2	1	1	0	360	-90	36	463	7441702	249399	BE	BSRC031
33m @ 13.5% Mn & 8.7% Fe from 2m													
including 17m @ 15.6% Mn from 2m	8.7	13.5	33	35	2	360	-90	48	485	7435327	257332	BE	BSRC032
32m @ 11.3% Mn & 7.7% Fe from 0m	7.7	11.3	32	32	0	360	-90	42	485	7435182	257210	BE	BSRC033
including 7m @ 14.6% Mn from 6m													
37m @ 11.5% Mn & 8.7% Fe from 5m until EOH	8.7	11.5	37	42	5	360	-90	42	485	7435014	257080	BE	BSRC034
NSR			0			360	-90	40	485	7435051	257373	BE	BSRC035
34m @ 11.3% Mn & 7.5% Fe from 2m until	7.5	44.2	24	26	2	200	00	26	405			D.F.	
ЕОН	7.5	11.3	34	36	2	360	-90	36	485	7435298	257069	BE	BSRC036
NSR			0			360	-90	30	485	7436074	256770	BE	BSRC037
NSR			0			360	-90	30	485	7435689	256650	BE	BSRC038
45m @ 9.9% Mn & 7.1% Fe from 1m	7.1	9.9	45	46	1	360	-90	54	485	7434925	256421	BE	BSRC039
10m @ 8.9% Mn & 7.6% Fe from 26m until EOH	7.6	8.9	10	36	26	360	-90	36	485	7434636	256329	BE	BSRC040
NSR			0			360	-90	30	485	7434220	256220	BE	BSRC041
NSR			0			360	-90	30	485	7435307	256540	BE	BSRC042
44m @ 11.7% Mn & 7.6% Fe from 4m	7.6	11.7	44	48	4	360	-90	60	485	7435402	257385	BE	BSRC043
41m @ 11.9% Mn & 8.6% Fe from 7m until													
EOH and including 7m @ 15.3% Mn from	8.6	11.9	41	48	7	360	-90	48	485	7435481	257463	BE	BSRC044
12m													
NSR NSR			0			360	-90 -90	24 24	485	7438306	255604 255598	BE	BSRC045 BSRC046
			0			360			485	7438204		BE	
NSR NSR			0			360 360	-90 -90	24 24	485 485	7438103 7437999	255601 255604	BE BE	BSRC047 BSRC048
NSR			0			360	-90	24	485	7437999	255602	BE	BSRC048
NSR			0			360	-90	24	485	7437301	255603	BE	BSRC050
NSR			0			360	-90	24	485	7437705	255600	BE	BSRC051
NSR			0			360	-90	24	485	7437602	255599	BE	BSRC052
22m @ 11.3% Mn & 8% Fe from 8m until		11 7		20									
ЕОН	8	11.3	22	30	8	360	-90	30	485	7438102	254798	BE	BSRC053
15m @ 8.8% Mn & 7.6% Fe from 9m until	7.6	8.8	15	24	9	360	-90	24	485	7438002	254798	BE	BSRC054
EOH 25m @ 10.7% Mn & 7.4% Fe from 5m until													
25m @ 10.7% Win & 7.4% Fe from 5m until	7.4	10.7	25	30	5	360	-90	30	485	7437903	254797	BE	BSRC055
NSR						1			1		25 4706	BE	
11511			0			360	-90	24	485	7437805	254796	DL	BSRC056
NSR			0			360 360	-90 -90	24 24	485 485	7437805 7437706	254798	BE	BSRC056 BSRC057
NSR			0			360	-90	24	485	7437706	254798	BE	BSRC057
NSR NSR			0			360 360	-90 -90	24 24	485 485	7437706 7437605	254798 254801	BE BE	BSRC057 BSRC058
NSR NSR NSR			0 0 0			360 360 360	-90 -90 -90	24 24 36	485 485 485	7437706 7437605 7438206	254798 254801 256999	BE BE BE	BSRC057 BSRC058 BSRC059
NSR NSR NSR NSR			0 0 0 0 0			360 360 360 360	-90 -90 -90	24 24 36 30	485 485 485 485	7437706 7437605 7438206 7438102	254798 254801 256999 256994	BE BE BE BE	BSRC057 BSRC058 BSRC059 BSRC060
NSR NSR NSR NSR NSR NSR			0 0 0 0			360 360 360 360 360	-90 -90 -90 -90	24 24 36 30 24	485 485 485 485 485	7437706 7437605 7438206 7438102 7438004	254798 254801 256999 256994 256996	BE BE BE BE BE	BSRC057 BSRC058 BSRC059 BSRC060 BSRC061
NSR			0 0 0 0 0 0			360 360 360 360 360 360 360	-90 -90 -90 -90 -90 -90 -90	24 24 36 30 24 24 24 24	485 485 485 485 485 485 485 485	7437706 7437605 7438206 7438102 7438004 7437901 7437799 7437702	254798 254801 256999 256994 256996 256996 256996 256997	BE BE BE BE BE BE BE BE	BSRC057 BSRC058 BSRC059 BSRC060 BSRC061 BSRC062 BSRC063 BSRC064
NSR			0 0 0 0 0 0 0			360 360 360 360 360 360 360 360 360	-90 -90 -90 -90 -90 -90 -90 -90	24 24 36 30 24 24 24 24 24	485 485 485 485 485 485 485 485 485	7437706 7437605 7438206 7438102 7438004 7437901 7437799 7437702 7437607	254798 254801 256999 256994 256996 256996 256996 256997 256999	BE	BSRC057 BSRC058 BSRC059 BSRC060 BSRC061 BSRC062 BSRC063 BSRC064 BSRC065
NSR			0 0 0 0 0 0			360 360 360 360 360 360 360 360 360 360	-90 -90 -90 -90 -90 -90 -90 -90 -90	24 24 36 30 24 24 24 24 24 24	485 485 485 485 485 485 485 485 485 485	7437706 7437605 7438206 7438102 7438004 7437901 7437799 7437702 7437607 7437510	254798 254801 256999 256994 256996 256996 256996 256997 256999 256997	BE	BSRC057 BSRC058 BSRC059 BSRC060 BSRC061 BSRC062 BSRC063 BSRC064 BSRC065 BSRC066
NSR			0 0 0 0 0 0 0			360 360 360 360 360 360 360 360 360 360	-90 -90 -90 -90 -90 -90 -90 -90 -90	24 24 36 30 24 24 24 24 24 24 24	485 485 485 485 485 485 485 485 485 485	7437706 7437605 7438206 7438102 7438004 7437901 7437709 7437702 7437607 7437510 7475702	254798 254801 256999 256994 256996 256996 256996 256997 256999 256997 276102	BE B	BSRC057 BSRC058 BSRC059 BSRC060 BSRC061 BSRC062 BSRC063 BSRC064 BSRC065 BSRC066 KRRC049
NSR			0 0 0 0 0 0 0			360 360 360 360 360 360 360 360 360 360	-90 -90 -90 -90 -90 -90 -90 -90 -90	24 24 36 30 24 24 24 24 24 24	485 485 485 485 485 485 485 485 485 485	7437706 7437605 7438206 7438102 7438004 7437901 7437799 7437702 7437607 7437510	254798 254801 256999 256994 256996 256996 256996 256997 256999 256997	BE	BSRC057 BSRC058 BSRC059 BSRC060 BSRC061 BSRC062 BSRC063 BSRC064 BSRC065 BSRC066
NSR	7.2	7.9	0 0 0 0 0 0 0	30	25	360 360 360 360 360 360 360 360 360 360	-90 -90 -90 -90 -90 -90 -90 -90 -90	24 24 36 30 24 24 24 24 24 24 24	485 485 485 485 485 485 485 485 485 485	7437706 7437605 7438206 7438102 7438004 7437901 7437709 7437702 7437607 7437510 7475702	254798 254801 256999 256994 256996 256996 256996 256997 256999 256997 276102	BE B	BSRC057 BSRC058 BSRC059 BSRC060 BSRC061 BSRC062 BSRC063 BSRC064 BSRC065 BSRC066 KRRC049
NSR	7.2		0 0 0 0 0 0 0 0 0 0			360 360 360 360 360 360 360 360 360 360	-90 -90 -90 -90 -90 -90 -90 -90 -90 -90	24 24 36 30 24 24 24 24 24 24 24 24 24 30	485 485 485 485 485 485 485 485 485 485	7437706 7437605 7438206 7438206 7438102 7438004 7437901 7437702 7437607 7437510 7475702 7475700	254798 254801 256999 256994 256996 256996 256996 256997 256997 256997 276102 276299	BE BE BE BE BE BE BE BE BE KR1 KR1	BSRC057 BSRC058 BSRC059 BSRC060 BSRC061 BSRC062 BSRC063 BSRC064 BSRC064 BSRC065 BSRC065 KRRC049 KRRC050
NSR		7.9	0 0 0 0 0 0 0 0 0	30	25	360 360 360 360 360 360 360 360 360 360	-90 -90 -90 -90 -90 -90 -90 -90 -90 -90	24 24 36 30 24 24 24 24 24 24 24 24	485 485 485 485 485 485 485 485 485 485	7437706 7437605 7438206 7438102 7438004 7437901 7437799 7437702 7437607 7437510 7475702 7475700	254798 254801 256999 256994 256996 256996 256997 256997 256997 276102 276299	BE KRI KRI	BSRC057 BSRC058 BSRC059 BSRC060 BSRC061 BSRC062 BSRC063 BSRC064 BSRC065 BSRC066 KRRC049 KRRC050
NSR	7.2		0 0 0 0 0 0 0 0 0 0			360 360 360 360 360 360 360 360 360 360	-90 -90 -90 -90 -90 -90 -90 -90 -90 -90	24 24 36 30 24 24 24 24 24 24 24 24 24 30	485 485 485 485 485 485 485 485 485 485	7437706 7437605 7438206 7438206 7438102 7438004 7437901 7437702 7437607 7437510 7475702 7475700	254798 254801 256999 256994 256996 256996 256996 256997 256997 256997 276102 276299	BE BE BE BE BE BE BE BE BE KR1 KR1	BSRC057 BSRC058 BSRC059 BSRC060 BSRC061 BSRC062 BSRC063 BSRC064 BSRC064 BSRC065 BSRC065 KRRC049 KRRC050



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KRRC055 KRRC056	KR1 KR1	276902 276998	7475701 7475705	511.5 511	30 24	-90 -90	360 360	0	26 8	26 8	10.0 9.4	7.3 6.5	26m @ 10% Mn & 7.3% Fe from 0m 8m @ 9.4% Mn & 6.5% Fe from 0m
KRRC057	KR1	277102	7475703	510	24	-90	360	U	0	0	5.4	0.3	NSR
KRRC058	KR1	277201	7475701	508	24	-90	360						NSR
KRRC059	KR1	276701	7475900	508	42	-90	360	5	34	29	9.4	7.7	29m @ 9.4% Mn & 7.7% Fe from 5m
KRRC060	KR1	276798	7475901	510	48	-90	360	5	36	31	9.6	7.3	31m @ 9.6% Mn & 7.3% Fe from 5m
KRRC061	KR1	276902	7475903	510	12	-90	360						NSR
KRRC062 KRRC063	KR1 KR1	276999 277100	7475898 7475898	510 509	36 24	-90 -90	360 360	0	25 14	25 14	9.8 9.5	7.5 6.7	25m @ 9.8% Mn & 7.5% Fe from 0m
KRRC064	KR1	277100	7475897	508	24	-90	360	U	14	14	9.5	0.7	14m @ 9.5% Mn & 6.7% Fe from 0m NSR
KRRC065	KR1	276501	7476099	505	24	-90	360						NSR
KRRC066	KR1	276704	7476098	505	48	-90	360	9	39	30	8.8	7.0	30m @ 8.8% Mn & 7% Fe from 9m
KRRC067	KR1	276808	7476103	507	42	-90	360	1	36	35	9.4	7.4	35m @ 9.4% Mn & 7.4% Fe from 1m
KRRC068	KR1	276895	7476103	507.5	42	-90	360	9	33	24	9.4	7.2	24m @ 9.4% Mn & 7.2% Fe from 9m
KRRC069	KR1	276997	7476097	509	12	-90	360		22	22	0.0	7.0	NSR
KRRC070 KRRC071	KR1 KR1	277099 277198	7476102 7476102	509 508	30 24	-90 -90	360 360	0	23 12	23 12	9.8 9.8	7.0 6.7	23m @ 9.8% Mn & 7% Fe from 0m 12m @ 9.8% Mn & 6.7% Fe from 0m
KRRC072	KR1	277299	7476101	506	24	-90	360		12	12	5.0	0.7	NSR
KRRC073	KR1	276499	7476301	503	30	-90	360						NSR
KRRC074	KR1	276699	7476300	504	60	-90	360	14	51	37	9.1	7.1	37m @ 9.1% Mn & 7.1% Fe from 14m
KRRC075	KR1	276901	7476303	505	54	-90	360	13	46	33	8.7	6.9	33m @ 8.7% Mn & 6.9% Fe from 13m
KRRC076	KR1	277007	7476298	508	48	-90	360	0	35	35	9.1	7.1	35m @ 9.1% Mn & 7.1% Fe from 0m
KRRC077 KRRC078	KR1 KR1	277103 277202	7476301 7476300	508 507	12 30	-90 -90	360 360	0	20	20	9.4	6.6	NSR 20m @ 9.4% Mn & 6.6% Fe from 0m
KRRC079	KR1	277202	7476300	506	24	-90	360	0	5	5	7.8	6.2	5m @ 7.8% Mn & 6.2% Fe from 0m
KRRC080	KR1	277399	7476307	505	24	-90	360		Ĺ			L	NSR
KRRC081	KR1	276496	7476498	502	30	-90	360						NSR
KRRC082	KR1	276698	7476498	503	24	-90	360						NSR
KRRC083	KR1	276902	7476503	507	30	-90	360	0	21	21	9.4	6.7	21m @ 9.4% Mn & 6.7% Fe from 0m
KRRC084 KRRC085	KR1 KR1	276999 277102	7476502 7476501	507 507	24 24	-90 -90	360 360	0	17 3	17 3	9.5 7.9	6.5	17m @ 9.5% Mn & 6.5% Fe from 0m 3m @ 7.9% Mn & 6.3% Fe from 0m
KRRC086	KR1	277102	7476517	507	12	-90	360	0	3	3	7.5	0.3	NSR
KRRC087	KR1	277302	7476499	506	18	-90	360						NSR
KRRC088	KR1	277403	7476505	505	18	-90	360						NSR
KRRC089	KR1	276501	7476900	501	30	-90	360						NSR
KRRC090	KR1	276701	7476902	503	48	-90	360	0	40	40	9.3	7.5	40m @ 9.3% Mn & 7.5% Fe from 0m
KRRC091 KRRC092	KR1 KR1	276898 277101	7476902 7476907	505 508	36 36	-90 -90	360 360	0	30 24	30 24	9.7 10.7	7.2 6.9	30m @ 9.7% Mn & 7.2% Fe from 0m 24m @ 10.7% Mn & 6.9% Fe from 0m
KRRC093	KR1	277301	7476900	507	24	-90	360	0	10	10	10.7	6.6	10m @ 10.4% Mn & 6.6% Fe from 0m
KRRC094	KR1	277497	7476904	505	24	-90	360						NSR
KRRC095	KR1	276603	7475900	507	60	-90	360	22	52	30	9.3	6.8	30m @ 9.3% Mn & 6.8% Fe from 22m
KRRC096	KR1	276503	7475899	506	60	-90	360	26	57	31	9.1	6.8	31m @ 9.1% Mn & 6.8% Fe from 26m
KRRC097	KR1	276604	7474704	518	42	-90	360	13	31	18	11.6	15.8	18m @ 11.6% Mn & 15.8% Fe from 13m
KRRC098	KR1	276609	7474651	518	48	-90	360	25	35	10	13.2	17.6	10m @ 13.2% Mn & 17.6% Fe from 25m 27m @ 13.4% Mn & 10.6% Fe from 0m
KRRC099	KR2	281402	7472401	500	30	-90	360	0	27	27	13.4	10.6	including 15m @ 16.3% Mn from 5m
KRRC100	KR2	281604	7472403	500	24	-90	360						NSR
KRRC101	KR2	281302	7472200	500	24	-90	360	0	24	24	10.7	9.6	24m @ 10.7% Mn & 9.6% Fe from 0m until EOH
KRRC102	KR2	281703	7472204	500	24	-90	360						NSR
KRRC103	KR2	281502	7472204	500	36	-90	360	0	36	36	15.5	11.9	36m @ 15.5% Mn & 11.9% Fe from 0m until
												ļ	EOH and including 23m @ 17.3% Mn 4m
KRRC104	KR2	281204	7472003	500	24	-90	360	1	11	10	9.2	12.6	10m @ 9.2% Mn & 12.6% Fe from 1m 30m @ 10.6% Mn & 10.5% Fe from 0m until
KRRC105	KR2	281404	7472003	500	30	-90	360	0	30	30	10.6	10.5	EOH
								_					30m @ 13.7% Mn & 11.5% Fe from 0m until
KRRC106	KR2	281662	7472003	500	30	-90	360	0	30	30	13.7	11.5	EOH and including 6m @ 15.5% Mn from 0m
KRRC107	KR2	281803	7472005	500	24	-90	360	2	6	4	8.2	6.8	4m @ 8.2% Mn & 6.8% Fe from 2m
KRRC108	KR2	281400	7471806	500	30	-90	360	0	30	30	9.5	9.4	30m @ 9.5% Mn & 9.4% Fe from 0m until
KRRC109	KR2	281601	7471802	500	24	-90	360	0	13	13	11.6	11.4	EOH 13m @ 11.6% Mn & 11.4% Fe from 0m
KRRC110	KR2	281804	7471802	500	24	-90	360	0	13	13	11.0	11.4	NSR
KRRC111	KR2	281502	7471601	500	30	-90	360	6	29	23	11.1	9.4	23m @ 11.1% Mn & 9.4% Fe from 6m
KRRC112	KR2	281707	7471603	500	24	-90	360	1	5	4	12	14.1	4m @ 12% Mn & 14.1% Fe from 1m
PKRC001	Damsite	252404	7470998	480	24	-90	360			0			NSR
PKRC002	Damsite	252397	7471101	480	24	-90	360	0	22	24	12.8	10	22m @ 12.8% Mn & 10% Fe from 0m including 6m @ 16.0% Mn from 7m
PKRC003	Damsite	252403	7471200	480	24	-90	360	0	10	10	12.4	9.3	10m @ 12.4% Mn & 9.3% Fe from 0m
PKRC004	Damsite	252401	7471301	480	24	-90	360	0	19	19	12.4	9.7	19m @ 12.4% Mn & 9.7% Fe from 0m
	Damsite												including 7m @ 16.4% Mn from 0m 24m @ 13.1% Mn & 9.7% Fe from 0m until
PKRC005	Damsite	252402	7471403	480	24	-90	360	0	24	24	13.1	9.7	EOH including 5m @ 16.4% Mn from 6m
PKRC006	Damsite	252403	7471500	480	24	-90	360	8	24	16	12.2	9.1	16m @ 12.2% Mn & 9.1% Fe from 8m until
	Dameita												EOH
PKRC007 PKRC008	Damsite Damsite	252202 252203	7471507 7471404	480 480	24 24	-90 -90	360 360	0	19 16	19 16	11.9 13.1	9.9	19m @ 11.9% Mn & 9.9% Fe from 0m 16m @ 13.1% Mn & 10% Fe from 0m
PKRC009	Damsite	252199	7471404	480	24	-90	360	1	9	8	9.8	8.9	8m @ 9.8% Mn & 8.9% Fe from 1m
PKRC010	Damsite	252198	7471205	480	24	-90	360					L	NSR
PKRC011	Damsite	252198	7471107	480	24	-90	360						NSR
PKRC012	Damsite	252201	7471004	480	24	-90	360	_			1	-	NSR
	Damsite	252020	7471506	480	24	-90	360	0	13	13	11.9	10.7	13m @ 11.9% Mn & 10.7% Fe from 0m
PKRC013 PKRC014	Damsite	252021	7471406	480	24	-90	360						NSR



NSR						360	-90	24	480	7471304	252021	Damsite	PKRC015
NSR						360	-90	24	480	7471204	252021	Damsite	PKRC016
NSR						360	-90	24	480	7471107	252020	Damsite	PKRC017
NSR						360	-90	24	480	7470997	252020	Damsite	PKRC018
24m @ 11.1% Mn & 8.3% Fe from 0m until EOH	8.3	11.1	24	24	0	360	-90	24	480	7467803	256395	Pickering	PKRC019
NSR						360	-90	24	480	7467705	256403	Pickering	PKRC020
NSR						360	-90	24	480	7467605	256401	Pickering	PKRC021
NSR						360	-90	24	480	7468201	256000	Pickering	PKRC022
15m @ 10.3% Mn & 8.5% Fe from 9m until EOH	8.5	10.3	15	24	9	360	-90	24	480	7468104	255999	Pickering	PKRC023
48m @ 10.9% Mn & 8.5% Fe from 0m	8.5	10.9	48	48	0	360	-90	54	480	7468004	256000	Pickering	PKRC024
24m @ 11.8% Mn & 7.9% Fe from 0m until EOH	7.9	11.8	24	24	0	360	-90	24	480	7467902	256002	Pickering	PKRC025
21m @ 11.6% Mn & 7.8% Fe from 0m	7.8	11.6	21	21	0	360	-90	24	480	7467808	256001	Pickering	PKRC026
3m @ 9.2% Mn & 6.9% Fe from 0m	6.9	9.2	3	3	0	360	-90	24	480	7467705	255999	Pickering	PKRC027
NSR						360	-90	24	480	7467601	256001	Pickering	PKRC028
3m @ 7.9% Mn & 6.9% Fe from 21m until EOH	6.9	7.9	3	24	21	360	-90	24	480	7468205	255196	Pickering	PKRC029
22m @ 10.2% Mn & 8.3% Fe from 2m until EOH	8.3	10.2	22	24	2	360	-90	24	480	7468102	255197	Pickering	PKRC030
24m @ 11.4% Mn & 8.5% Fe from 0m until EOH	8.5	11.4	24	24	0	360	-90	24	480	7468006	255200	Pickering	PKRC031
24m @ 11.5% Mn & 7.7% Fe from 0m until EOH	7.7	11.5	24	24	0	360	-90	24	480	7467904	255201	Pickering	PKRC032
18m @ 10.4% Mn & 7.6% Fe from 0m	7.6	10.4	18	18	0	360	-90	24	480	7467804	255202	Pickering	PKRC033
NSR						360	-90	24	480	7467699	255198	Pickering	PKRC034
NSR						360	-90	24	480	7467601	255201	Pickering	PKRC035
NSR						360	-90	24	480	7468202	254398	Pickering	PKRC036
12m @ 10.3% Mn & 8.6% Fe from 12m until EOH	8.6	10.3	12	24	12	360	-90	24	480	7468103	254398	Pickering	PKRC037
24m @ 11.1% Mn & 8.9% Fe from 0m until EOH	8.9	11.1	24	24	0	360	-90	24	480	7467998	254402	Pickering	PKRC038
24m @ 11.3% Mn & 8.5% Fe from 0m until EOH	8.5	11.3	24	24	0	360	-90	24	480	7467906	254403	Pickering	PKRC039
24m @ 11.2% Mn & 7.5% Fe from 0m until EOH	7.5	11.2	24	24	0	360	-90	24	480	7467802	254406	Pickering	PKRC040
11m @ 9.4% Mn & 7.7% Fe from 0m	7.7	9.4	11	11	0	360	-90	24	480	7467703	254400	Pickering	PKRC041
NSR				İ		360	-90	24	480	7467605	254396	Pickering	PKRC042

<sup>\*</sup> holes KRRC025 and KRRC026 are twin holes



## Appendix 2. JORC 2012 Table 1

### Section 1 Sampling Techniques and Data

Criteria		ion apply to all succeeding sections.) PRC Code explanation	Co	mmentary		
Sampling techniques	•	Nature and quality of sampling (eg 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. Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.  Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (eg '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 (eg submarine nodules)	•	The samples were collected using industry standard Reverse Circulation (RC) drill methods.  Drilling was completed by Impact Drilling who completed the entire RC drill program – 220 holes for 6927m.  There was limited water encountered during the drill program.  The drilling and sample techniques are considered representative for the style of mineralisation utilising 1m sample intervals gathered directly from the RC drill rig using an adjustable cone splitter from a levelled drill rig.  The target sample weight was between 2-3kg which is appropriate for the style of mineralisation.		
Drilling	•	may warrant disclosure of detailed information.  Drill type (eg core, reverse circulation, open-hole	•	The drill type is Reverse Circulation (RC), drilling vertical		
techniques		hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg 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).	•	holes. The drill diameter us 5 ¼ inch RC using a face sampling hammer		
Drill sample	•	Method of recording and assessing core and	•	Sample recovery was estimated by the geologist on the rig		
recovery		chip sample recoveries and results assessed.  Measures taken to maximise sample recovery		and secondly by assessing the weight of the representative samples delivered to laboratory.		
	•	wheathes taken to maximise sample recovery and ensure representative nature of the samples.  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.	•	The drill recoveries were deemed acceptable with supervision of the sampling at the cone splitter.  No sample bias due to sample loss is evident from the observed sample recoveries and reported grades.  The samples were drilled mostly dry again minimising		
Logging	•	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.  Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.  The total length and percentage of the relevant intersections logged.	•	sample bias  Drillhole logging was completed at the drill rig recording lithology, texture, grain size and colour.  1m chip trays were also collected in site, photographed and used to further detailed logging post the drill program.  The logging was considered appropriate for exploration reporting and eventually Mineral Resource Estimation Every 1m interval as logged and sieved for inspection – 6927 intervals were inspected		
Sub-	•	If core, whether cut or sawn and whether	•	The 1m RC samples were gathered by using a levelled cone		
sampling		quarter, half or all core taken.		splitter of the side of the rig.		
techniques and sample	•	If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.	•	The samples were dominantly dry.  Black Canyon inserted Certified Reference Material (CRM)		
preparation	<ul> <li>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> </ul>	For all sample types, the nature, quality and appropriateness of the sample preparation technique.		Black Canyon inserted Certified Reference Material (CRM) at a rate of 1/50, blanks at a rate of 1/50 and field duplicates from the cone splitter at a rate of 1/50 for a total insertion rate of QA/QC materials at 6%		
	•	Quality control procedures adopted for all sub- sampling stages to maximise representivity of samples.  Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field	•	The sub sampling technique and quality control procedures is considered appropriate to ensure sample representivity. The sample size is considered appropriate for the grainsize and style of mineralisation		
	•	duplicate/second-half sampling. Whether sample sizes are appropriate to the grain size of the material being sampled.				
Quality of assay data	•	The nature, quality and appropriateness of the assaying and laboratory procedures used and	•	The samples were submitted to Bureau Veritas in Canningvale, WA.		



Criteria	JORC Code explanation	Commentary
and laboratory tests	<ul> <li>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 (egstandards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	Review of the quality control results received to date that include CRM, blanks, duplicates show an acceptable level of
Verification of sampling and assaying	<ul> <li>The verification of significant intersections by either independent or 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>	The significant intersections have not been verified by independent personnel but have been reviewed by alternative Company personnel.
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>Once a drill hole was completed the drill collar was located using a GARMIN handheld GPS with an accuracy of +/- 5m</li> <li>The grid system is UTM zone 51, GDA94 datum.</li> <li>The topography is quite flat reflecting the underlying stratigraphy. The holes are shallow and downhole deviation is not considered material in the context of these results</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>	
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 introduced a sampling bias, this should be assessed and reported if material.</li> </ul>	
Sample security	The measures taken to ensure sample security.	The samples were collected into bulka bags, sealed with cable ties and stored on site until the drill program was completed.  The samples were then trucked to Perth in three consignments and delivered directly to Bureau Veritas in Canningvale.  The bulka bags were inspected and audited by Bureau Veritas who did not report any suspicious or tampered samples
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	<ul> <li>Other than internal review by Company personnel, no audits have been completed.</li> <li>The CP was on site for some of the RC drill program and considers the sampling and sub sampling techniques to be equal to industry standard and appropriate for the style of mineralisation and the results being reported.</li> </ul>

## Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral	Type, reference name/number, location and	The drilling was undertaken on granted tenements
tenement and	ownership including agreements or material	E46/1383, E46/1404 and E46/1396



Criteria	JORC Code explanation	Commentary
land tenure status	issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.  The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	The tenements and all mineral rights are 100% owned by Black Canyon Ltd apart from E46/1383 where Killi Resources owns the copper rights.  The tenements have Native Title Heritage Protection Agreements in place with the Karlka Nyiyaparli People that required a Heritage Survey to be undertaken prior to ground disturbing activities. Both Ethnographic and Archeologic surveys have been completed prior to commencement of site activities.  There are no other known impediments to exploring the listed tenements  There has been limited exploration work carried out on the
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	<ul> <li>There has been limited exploration work carried out on the tenements for manganese.</li> <li>There has been no drilling carried out by past explorers specifically targeting manganese on these tenements</li> </ul>
Geology	Deposit type, geological setting and style of mineralisation.	<ul> <li>The tenements are located within the Oakover Basin, the edges of which are defined by the Neoarchaean Fortescue Group. Most of the tenements are covered by quaternary alluvium, sheetwash with restricted outcrop that comprises rocks of the Manganese Group, mainly the Encheddong Dolomite and Balfour Formation. The tenements contain widespread manganese scree associated with manganese enriched Balfour Formation shales.</li> <li>The mineralisation is described as supergene manganese enriched shale. The host Mn shale is gradually enriched in manganese as it weathers or is leached and redeposited in the upper zones. The upgrades can be substantial and are often associated with iron. Structural enhancement maybe a factor in developing thick zones of mineralisation. Both Mn and Fe are very mobile in the near surface environment in WA.</li> </ul>
Drill hole Information	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:  a easting and northing of the drill hole collar elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar dip and azimuth of the hole down hole length and interception depth hole length.  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.	Refer to Appendix 1 for a complete listing of the RC drill holes completed across the Balfour Manganese Field for the July 2023 RC drill program by Black Canyon  Section 1. Section 2. Section 2
Data aggregation methods	<ul> <li>In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg 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>	<ul> <li>Only length (1m) weighted intervals are included in the text of this release.</li> <li>Manganese intervals have been reported at 7% Mn cut off allowing dilution that still enables the total reported grade to be greater than 7% Mn.</li> <li>Iron intervals have been reported as they coincide with the Mn intervals and no cut offs are applied.</li> <li>No metal equivalent values are used.</li> </ul>
Relationship between mineralisatio n 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 (eg 'down hole length, true width not known').</li> </ul>	<ul> <li>The deposit is mostly flat lying exhibiting a gentle dip of mineralisation to the west therefore 90° angled (vertical) drill holes are considered appropriate.</li> <li>The drill results reported are interpreted to represent close to true widths of the mineralisation and are reported at down hole length.</li> </ul>
Diagrams	Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These	These have been included in the body of the release where relevant and material to the reader's understanding of the results in regard to the context in which they have been



Criteria	JORC Code explanation	Commentary
	should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.	reported.
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.	<ul> <li>Information considered material to the reader's understanding of the Exploration Results has been reported. in the body of the text and significant results have selectively been reported to provide the reader with the potential tenor and widths of the mineralisation</li> <li>APPENDIX 1- contains the location, drill holes details and assay results as received for the July 2023 drill program.</li> <li>Holes denoted with NSR indicated that no mineralisation over 7% Mn was detected in that hole.</li> </ul>
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.	All information considered material to the reader's understanding and context of the RC Exploration Results have been reported.
Further work	The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).  Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.	<ul> <li>Further work is planned that includes further infill and extension drilling</li> <li>Diamond core drilling for large scale metallurgical testwork to produce manganese concentrates and materials suitable for HPMSM testwork.</li> <li>Down hole geophysical surveys for magnetic susceptibility density and gamma radiation to be completed and will be used to update the lithological logging.</li> <li>It is anticipated that the targets drilled from this RC program will have potential for eventual economic extraction and Mineral Resource Estimates and or Exploration Targets will be generated subject to review of the geological and grade continuity of the drill logging and assays results respectively.</li> </ul>