



# BLACK CANYON

## ASX Announcement



25 October 2022

ASX:BCA

## Discovery of thick manganese enriched shale between the Flanagan Bore deposits

- Assay results from drilling along 2,000m of strike between the FB3 and LR1 deposits has discovered thick, continuous higher grade-zones of manganese enriched shale Significant results include:
  - 27m @ 13.7% Mn from surface (FBRC305), including
    - 11m @ 15.0% Mn from 3m
  - 39m @ 12.3% Mn from surface (FBRC306), including
    - 11m @ 14.9% Mn from 23m
  - 39m @ 12.3% Mn from surface (FBRC317), including
    - 13m @ 15.5% Mn from 21m
  - 42m @ 11.9% Mn from 1m (FBRC321), including
    - 13m @ 15.9% Mn from 25m
  - 39m @ 12.2% Mn from 3m (FBRC330) until EOH
  - 35m @ 13.2% Mn from 4m (FBRC345)
- Manganese enriched shale between FB3 and LR1 drilled from surface or beneath 1-2m of cover
- Regional drill lines completed over the FB2 and FB6 targets also discovered significant thickness of manganese enriched shales highlighting further tenement scale prospectivity at Flanagan Bore
- The drill results confirm the potential for a significant tonnage expansion of the current Mineral Resource Estimate at Flanagan Bore expected in December

Australian manganese explorer, Black Canyon Limited (**Black Canyon** or the **Company**) (ASX:BCA), is pleased to announce the results from the recent reverse circulation (RC) drill program at the Flanagan Bore Manganese Project. Systematic drilling along a 2,000m long target located between the FB3 and LR1 deposits discovered significant zones of manganese mineralisation.

The higher-grade manganese enriched shale mineralisation shows similar key characteristics to the FB3 and LR1 deposits with strong grade and geological continuity (Figure 1). With receipt of these latest drill results, there is high potential to expand the global Mineral Resource Estimate (MRE) at Flanagan Bore beyond the current **104Mt @ 10.5% Mn (Indicated)** containing **11Mt of manganese** (refer to ASX Announcement 13 April 2022 for further details).

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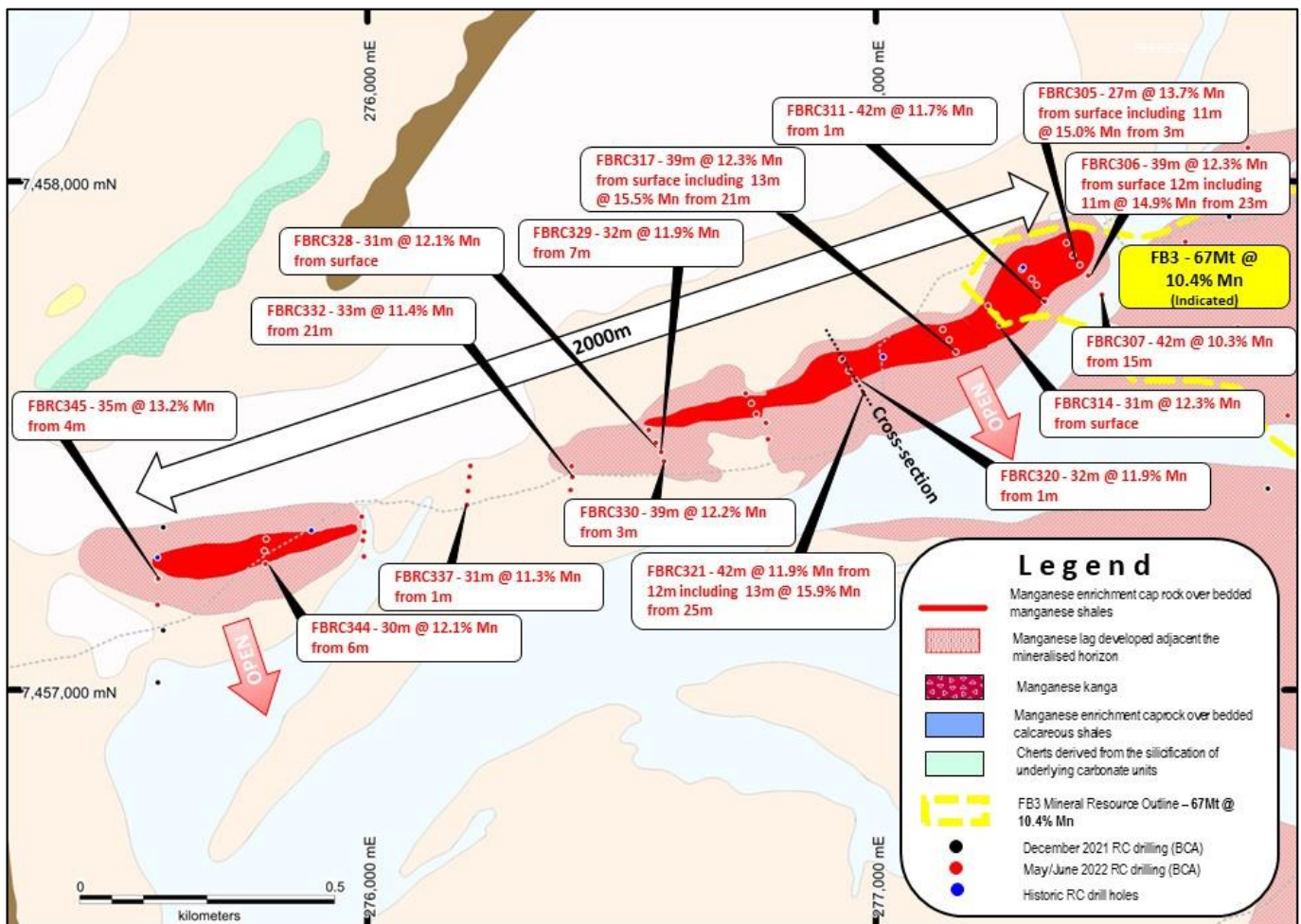
**Black Canyon's Executive Director, Brendan Cummins, said** "The outstanding continuity of manganese grade and geology has been further highlighted with these latest assay results from the drilling along 2,000m of strike between the LR1 and FB3 deposits.

"The downhole intervals above 15% Mn will potentially add valuable higher grade tonnes that might be accessed early in a mine sequence, and may also extend the 20 year mine life previously announced from the Scoping Study.

"The Company has rapidly progressed the Flanagan Bore Manganese Project over the past 12 months and is in a strong position to continue its development strategy through a number of de-risking activities over the next 12 months.

"We remain very excited about the potential of producing manganese products that will be sought after for both the steel and the ever-growing electric vehicle battery market."

Located 120km north-east of Newman, Flanagan Bore is part of the Company's Carawine JV and is subject to a farm-in and joint venture agreement with Carawine Resources Ltd (ASX:CWX). Having earned a 51% interest, Black Canyon is now earning up to 75% in the Carawine Project tenements by sole-funding an additional \$2.5m of exploration expenditure.



**Figure 1. TF1 – L1 trend between the FB3 and LR1 deposit drill plan showing significant drill results over mapped geology (BCA earning 75%)**



## Flanagan Bore Drill Program Summary

A total of 181 holes for 7,534m of RC drilling was completed at Flanagan Bore during May/June 2022. Along the L1 and TF1 mineralised trend, the majority of the drill lines were spaced 200m apart using angled drill holes located on 25 or 50m centres to obtain complete drill section coverage. Whilst at FB3 and LR1, the overall drill spacing has been reduced to a 100m x 100m grid pattern.

All of the assay results have now been received and compiled from the LR1 and FB3 deposits, along the L1 to TF1 trend and from the FB2 and FB6 prospects (Figure 2). A summary of the significant results and collar details for the drill program completed at Flanagan Bore are presented in Appendix 1.

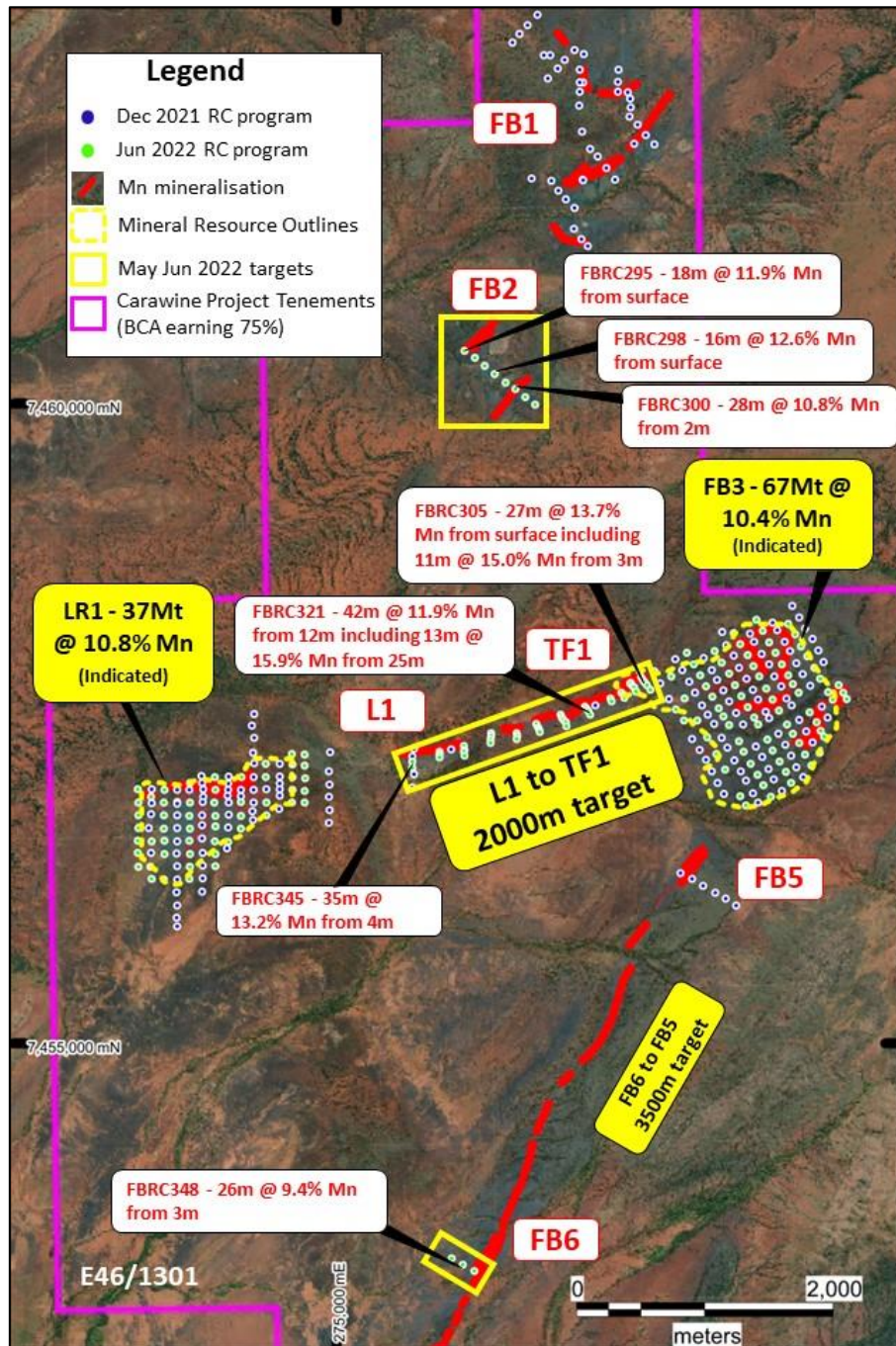


Figure 2. Flanagan Bore Project – some drill results from L1 to TF1 between Mineral Resource outlines FB3 & LR1, additional drill results at FB2 and FB6 (Black Canyon (51%) earning up to 75%)

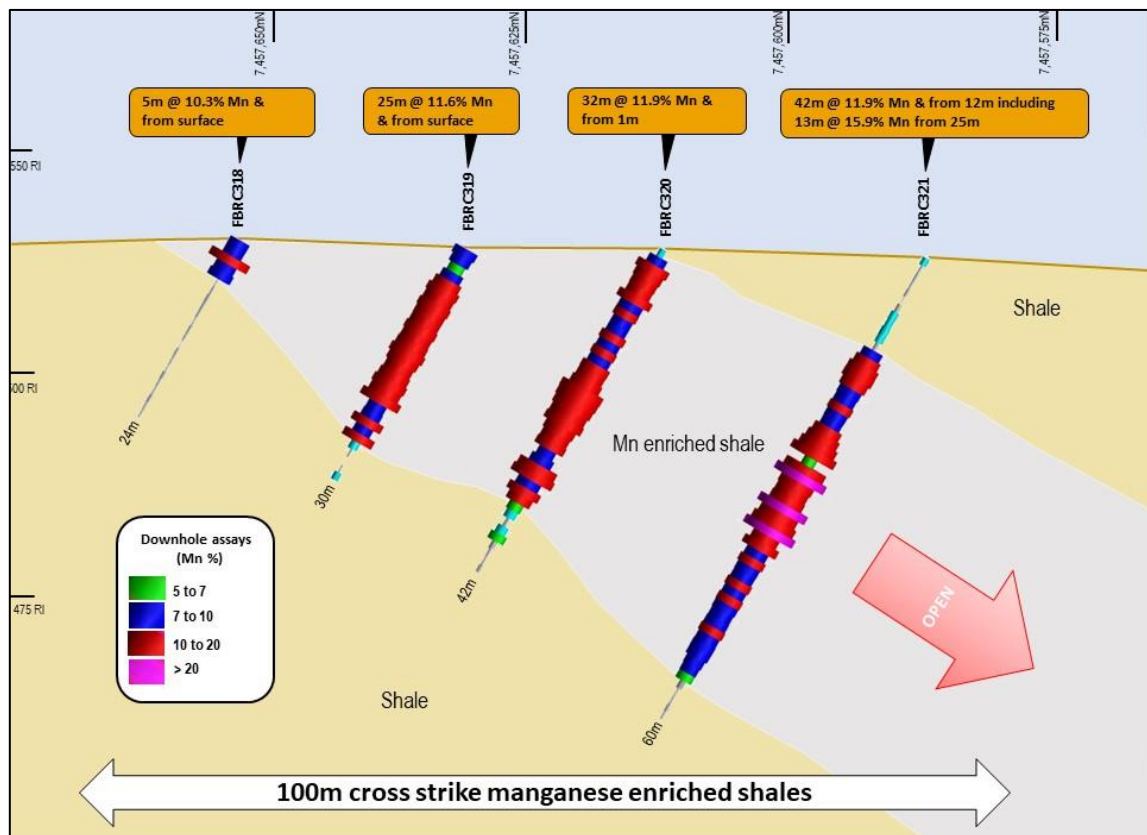
## L1 to TF1 Results

Manganese enriched shale has now been delineated from surface along the L1 to TF1 trend extending over 2,000m of strike with a cross width currently defined ranging between 90 to 130m. Similar to FB3 and LR1 the manganese enriched beds are shallowly dipping and remain open to the southeast.

The continuity of the manganese enriched mineralisation will extend the MRE from FB3 along strike to the southwest. Deeper drilling completed as part of this infill phase has yielded much thicker intervals of mineralisation than previously encountered, which has the potential to further expand the FB3 Mineral Resource Estimate and grow the global mineral resources at Flanagan Bore.

Significant results are shown in plan and section in Figures 1 & 3 respectively and listed below.

- **27m @ 13.7% Mn from surface (FBRC305), including**
  - **11m @ 15.0% Mn from 3m**
- **39m @ 12.3% Mn from surface (FBRC306), including**
  - **11m @ 14.9% Mn from 23m**
- **39m @ 12.3% Mn from surface (FBRC317), including**
  - **13m @ 15.5% Mn from 21m**
- **42m @ 11.9% Mn from 1m (FBRC321), including**
  - **13m @ 15.9% Mn from 25m**
- **39m @ 12.2% Mn from 3m (FBRC330) until EOH**
- **35m @ 13.2% Mn from 4m (FBRC345)**



**Figure 3. TF1 anomaly cross section (see Figure 1 for location) showing significant results from the L1 – TF1 drill program (looking northeast)**

### **FB2 Drill Results**

A total of 8 holes were completed on a single drill line over the FB2 anomaly targeting a zone of partially outcropping manganese enriched shales located between FB2 and the LR1 deposit. The mineralisation from FB2 appears to go under shallow cover towards LR1 that is located about 3km to the south west and represents another significant drill target. Initial mapping completed on the anomaly indicated a series of north east trending folds exposing and repeating the manganese enriched shales at surface. Significant results include:

- **18m @ 11.9% Mn from surface (FBR295)**
- **16m @ 12.6% Mn from surface (FBRC298)**
- **28m @ 10.8% Mn from 2m (FBRC300)**

The thickness, grade and outcropping nature of the mineralisation at FB2 are highly encouraging and further drilling will be planned in future programs along strike to the southwest.

### **FB6 Drill Results**

A total of 3 holes were drilled at the FB6 anomaly which is located 3.5km along strike to the southwest of the FB5 and FB3 deposit. The holes were drilled on a single line and show similar thickness and grade ranges to FB5 and confirm the significant potential of substantial manganese mineralisation occurring between FB5 and FB6. Significant drill results include:

- **26m @ 9.4% Mn from 3m (FBRC347)**
- **28m @ 10.8% Mn from 2m (FBRC348)**

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

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## About Black Canyon

Black Canyon has entered into a farm-in and joint venture with ASX listed Carawine Resources Limited (ASX:CWX) to acquire a majority interest in the Carawine JV Project in Western Australia. The Carawine Project covers approximately 800km<sup>2</sup> of tenure located south of the operating Woodie-Woodie manganese mine, providing a large footprint in a proven and producing manganese belt. Black Canyon has also applied for and acquired other exploration licenses adjacent to the Carawine Project that would increase the total land holdings to over 2,400 km<sup>2</sup> upon grant. In addition to manganese, the Carawine Project also hosts multiple copper occurrences including the Western Star prospect which comprises a large zone of surface copper enrichment.

Manganese and copper continue to have attractive fundamentals with growing utilisation in the battery mineral sector and challenging supply conditions.

## Compliance Statements

### Reporting of Exploration Results and Previously Reported Information

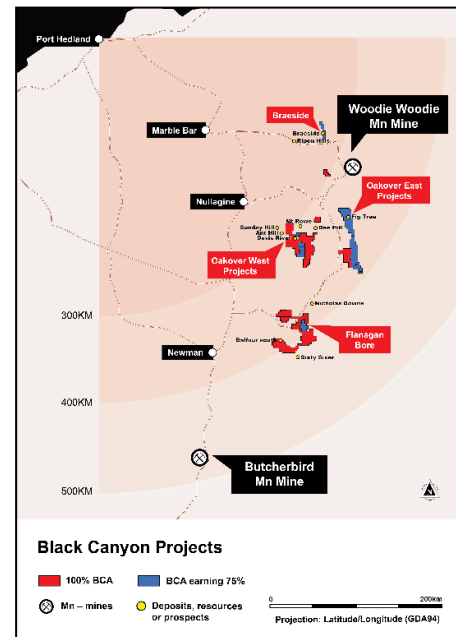
The information in this report that relates to Exploration Results is based on, and fairly represents, information and supporting documentation reviewed by Mr Brendan Cummins, Executive Director of Black Canyon Limited. Mr Cummins is a member of the Australian Institute of Geoscientists, and he has sufficient 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 information in the form and context in which they appear. Mr Cummins is a shareholder of Black Canyon Limited.

The information in this report that relates to Mineral Resources is based on, and fairly represents, information and supporting documentation prepared by Mr Greg Jones, (Consultant to Black Canyon and Geological Services Manager for IHC Mining). Mr Jones is a Fellow of the Australian Institute of Mining and Metallurgy and has sufficient experience of relevance to the style of mineralisation and type of deposit under consideration, and to the activities undertaken to qualify as a Competent Persons as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Jones consents to the inclusion in this report of the matters based on the information in the form and context in which they appear.

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 and 15 September 2022 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. Flanagan Bore drill collar information and assay results from the May/June 2022 RC drill program

Hole ID	Deposit	East (GDA94)	North (GDA94)	RI	Survey Method	EOH (m)	Dip	Azimuth	From (m)	To (m)	Interval (m)	Mn (%)	Fe (%)	Drill intersection
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FBRC169	LR1	273446.5	7457002.1	498.1	DGPS	24	-90	360						NSR
FBRC170	LR1	273447.9	7456901.3	497.8	DGPS	54	-90	360	2	36	34	13.1	8.7	34m @ 13.1% Mn & 8.7% Fe from 2m
FBRC171	LR1	273448.7	7456799.1	497.5	DGPS	60	-90	360	18	60	42	9.9	8.2	42m @ 9.9% Mn & 8.2% Fe from 18m until EOH
FBRC172	LR1	273450.3	7456700.1	497.2	DGPS	66	-90	360	27	66	39	9.7	8.0	39m @ 9.7% Mn & 8% Fe from 27m until EOH
FBRC173	LR1	273442.8	7456599.6	496.9	DGPS	54	-90	360	31	54	23	9.7	8.2	23m @ 9.7% Mn & 8.2% Fe from 31m until EOH
FBRC174	LR1	273446.6	7456504.1	496.5	DGPS	60	-90	360	33	60	27	9.6	7.9	27m @ 9.6% Mn & 7.9% Fe from 33m until EOH
FBRC175	LR1	273449.2	7456396.4	496.3	DGPS	60	-90	360	40	60	20	9.5	7.6	20m @ 9.5% Mn & 7.6% Fe from 40m until EOH
FBRC176	LR1	273548.7	7456946.5	498.1	DGPS	48	-90	360	0	8	8	8.7	6.8	8m @ 8.7% Mn & 6.8% Fe from 0m
FBRC177	LR1	273552.9	7456598.2	497.1	DGPS	60	-90	360	22	60	38	9.8	7.9	38m @ 9.8% Mn & 7.9% Fe from 22m until EOH
FBRC178	LR1	273544.7	7456397.5	496.6	DGPS	60	-90	360	29	54	25	9.7	7.5	25m @ 9.7% Mn & 7.5% Fe from 29m
FBRC179	LR1	273552.8	7456301.5	496.3	DGPS	60	-90	360	40	60	20	9.7	7.9	20m @ 9.7% Mn & 7.9% Fe from 40m until EOH
FBRC180	LR1	273650.8	7457000.6	499.0	DGPS	24	-90	360						NSR
FBRC181	LR1	273648.3	7456898.6	498.5	DGPS	60	-90	360	6	50	44	10.1	8.2	44m @ 10.1% Mn & 8.2% Fe from 6m
FBRC182	LR1	273647.8	7456798.3	497.9	DGPS	70	-90	360	7	53	46	10.2	8.5	46m @ 10.2% Mn & 8.5% Fe from 7m
FBRC183	LR1	273647.5	7456698.1	497.6	DGPS	60	-90	360	9	52	43	9.6	8	43m @ 9.6% Mn & 8% Fe from 9m
FBRC184	LR1	273650.9	7456601.3	497.4	DGPS	48	-90	360	12	45	33	10.7	8.3	33m @ 10.7% Mn & 8.3% Fe from 12m
FBRC185	LR1	273652.1	7456498.9	497.1	DGPS	42	-90	360	10	35	25	9.9	7.8	25m @ 9.9% Mn & 7.8% Fe from 10m
FBRC186	LR1	273648.8	7456298.0	496.6	DGPS	68	-90	360	40	64	24	9.7	7.9	24m @ 9.7% Mn & 7.9% Fe from 40m
FBRC187	LR1	273849.3	7457053.8	500.0	DGPS	18	-90	360						NSR
FBRC188	LR1	273852.6	7456899.8	499.3	DGPS	54	-90	360	0	44	44	11.1	8.5	44m @ 11.1% Mn & 8.5% Fe from 0m
FBRC189	LR1	273848.4	7456796.9	499.2	DGPS	54	-90	360	0	43	43	10.5	8.6	43m @ 10.5% Mn & 8.6% Fe from 0m
FBRC190	LR1	273850.5	7456697.7	499.0	DGPS	42	-90	360	0	34	34	10.4	8.1	34m @ 10.4% Mn & 8.1% Fe from 0m
FBRC191	LR1	273848.8	7456599.0	498.8	DGPS	36	-90	360	5	25	20	11.6	9.2	20m @ 11.6% Mn & 9.2% Fe from 5m
FBRC192	LR1	273853.3	7456499.0	498.5	DGPS	42	-90	360	0	32	32	11.3	9.3	32m @ 11.3% Mn & 9.3% Fe from 0m
FBRC193	LR1	273853.1	7456399.1	498.1	DGPS	54	-90	360	39	44	5	10.3	10.6	5m @ 10.3% Mn & 10.6% Fe from 39m
FBRC194	LR1	273844.6	7456301.3	497.5	DGPS	70	-90	360						NSR
FBRC195	LR1	274046.9	7457099.4	501.9	DGPS	24	-90	360						NSR
FBRC196	LR1	274049.5	7456998.8	504.1	DGPS	24	-90	360	0	17	17	15.1	10.1	17m @ 15.1% Mn & 10.1% Fe from 0m
FBRC197	LR1	274043.4	7456897.3	502.0	DGPS	42	-90	360	0	29	29	14.8	9	29m @ 14.8% Mn & 9% Fe from 0m
FBRC198	LR1	274248.7	7456902.8	502.2	DGPS	54	-90	360	0	42	42	11.0	10.1	42m @ 11% Mn & 10.1% Fe from 0m
FBRC199	LR1	274249.7	7456797.4	501.0	DGPS	60	-90	360	1	47	46	11.9	9.2	46m @ 11.9% Mn & 9.2% Fe from 1m
FBRC200	LR1	274247.5	7456698.0	500.5	DGPS	42	-90	360	15	35	20	15.4	9.5	20m @ 15.4% Mn & 9.5% Fe from 15m
FBRC201	LR1	274150.8	7456594.1	499.7	DGPS	54	-90	360	34	47	13	9.9	7.9	13m @ 9.9% Mn & 7.9% Fe from 34m
FBRC202	LR1	274047.9	7456597.9	499.5	DGPS	36	-90	360	22	26	4	16.7	9.9	4m @ 16.7% Mn & 9.9% Fe from 22m
FBRC203	LR1	274049.5	7456498.3	499.0	DGPS	42	-90	360						NSR
FBRC204	LR1	274050.2	7456401.0	498.4	DGPS	72	-90	360						NSR
FBRC205	LR1	274051.0	7456715.0	500.0	GPS	36	-90	360	3	14	11	14.9	10.8	11m @ 14.9% Mn & 10.8% Fe from 3m
FBRC206	LR1	274051.1	7456797.5	500.3	DGPS	36	-90	360	0	7	7	10.3	6.3	7m @ 10.3% Mn & 6.3% Fe from 0m
FBRC207	LR1	274444.0	7457201.4	504.3	DGPS	48	-90	360	7	21	14	11.2	10.0	14m @ 11.2% Mn & 10% Fe from 7m
FBRC208	LR1	274445.4	7457097.9	503.5	DGPS	30	-90	360	0	30	30	12.7	9.2	30m @ 12.7% Mn & 9.2% Fe from 0m until EOH
FBRC209	LR1	274448.3	7456901.7	502.0	DGPS	60	-90	360	7	41	34	11.7	10.1	34m @ 11.7% Mn & 10.1% Fe from 7m
FBRC210	LR1	274446.2	7456798.0	501.6	DGPS	54	-90	360						NSR
FBRC211	LR1	274648.8	7457277.4	505.6	DGPS	36	-90	360						NSR
FBRC212	LR1	274652.8	7457199.1	505.4	DGPS	36	-90	360						NSR
FBRC213	LR1	274651.8	7457100.0	504.8	DGPS	30	-90	360						NSR

FBRC214	LR1	274651.6	7456997.4	503.7	DGPS	36	-90	360							NSR
FBRC215	LR1	274646.9	7456898.9	503.1	DGPS	36	-90	360							NSR
FBRC216	LR1	274744.1	7457275.2	506.2	DGPS	36	-90	360							NSR
FBRC217	LR1	274748.0	7457187.9	506.0	DGPS	30	-90	360							NSR
FBRC218	LR1	274751.1	7457091.4	505.2	DGPS	30	-90	360							NSR
FBRC219	LR1	274748.3	7456989.8	504.1	DGPS	25	-90	360							NSR
FBRC220	LR1	274746.6	7456900.4	503.9	DGPS	24	-90	360							NSR
FBRC221	LR1	274251.4	7457100.0	503.9	DGPS	30	-90	360							NSR
FBRC222	FB3	278573.3	7458216.8	526.7	DGPS	18	-90	360							NSR
FBRC223	FB3	278619.3	7458120.4	525.0	DGPS	24	-90	360							NSR
FBRC224	FB3	278670.3	7458042.5	522.8	DGPS	18	-90	360	0	1	1	11.7	10.1		1m @ 11.7% Mn & 10.1% Fe from 0m
FBRC225	FB3	278722.0	7457952.4	521.7	DGPS	18	-90	360	0	1	1	8.6	6.7		1m @ 8.6% Mn & 6.7% Fe from 0m
FBRC226	FB3	278771.1	7457866.7	520.5	DGPS	18	-90	360	0	15	15	9.5	10.8		15m @ 9.5% Mn & 10.8% Fe from 0m
FBRC227	FB3	278521.9	7458295.5	531.4	DGPS	18	-90	360	0	1	1	17.7	16.7		1m @ 17.7% Mn & 16.7% Fe from 0m
FBRC228	FB3	278274.0	7458326.6	526.5	DGPS	18	-90	360	0	6	6	24.1	12.1		<b>6m @ 24.1% Mn &amp; 12.1% Fe from 0m</b>
FBRC229	FB3	278323.1	7458240.1	532.0	DGPS	18	-90	360	2	4	2	12.5	7.7		2m @ 12.5% Mn & 7.7% Fe from 2m
FBRC230	FB3	278373.2	7458153.1	533.0	DGPS	42	-90	360	4	23	19	13.7	12.9		19m @ 13.7% Mn & 12.9% Fe from 4m
FBRC231	FB3	278420.6	7458068.0	533.3	DGPS	60	-90	360	0	47	47	13.6	13.1		<b>47m @ 13.6% Mn &amp; 13.1% Fe from 0m</b>
FBRC232	FB3	278472.1	7457980.6	531.1	DGPS	54	-90	360	2	41	39	13.0	11.2		<b>39m @ 13% Mn &amp; 11.2% Fe from 2m</b>
FBRC233	FB3	278522.3	7457895.2	524.7	DGPS	36	-90	360	0	19	19	11.5	10.8		<b>19m @ 11.5% Mn &amp; 10.8% Fe from 0m</b>
FBRC234	FB3	278555.8	7457827.9	521.9	DGPS	36	-90	360	0	22	22	11.9	10.7		<b>22m @ 11.9% Mn &amp; 10.7% Fe from 0m</b>
FBRC235	FB3	278602.3	7457757.2	520.2	DGPS	54	-90	360	0	41	41	10.4	10.1		<b>41m @ 10.4% Mn &amp; 10.1% Fe from 0m</b>
FBRC236	FB3	278097.3	7458225.9	521.3	DGPS	18	-90	360							NSR
FBRC237	FB3	278144.9	7458139.7	526.7	DGPS	36	-90	360	0	22	22	12.0	11.0		22m @ 12% Mn & 11% Fe from 0m
FBRC238	FB3	278202.3	7458051.8	526.2	DGPS	54	-90	360	0	36	36	13.2	10.9		<b>36m @ 13.2% Mn &amp; 10.9% Fe from 0m</b>
FBRC239	FB3	278248.1	7457965.5	525.4	DGPS	60	-90	360	0	51	51	12.3	11.2		<b>51m @ 12.3% Mn &amp; 11.2% Fe from 0m</b>
FBRC240	FB3	278293.2	7457883.7	522.8	DGPS	60	-90	360	0	48	48	10.8	11.0		<b>48m @ 10.8% Mn &amp; 11% Fe from 0m</b>
FBRC241	FB3	278349.3	7457791.2	523.4	DGPS	54	-90	360	0	40	40	10.9	10.3		<b>40m @ 10.9% Mn &amp; 10.3% Fe from 0m</b>
FBRC242	FB3	278397.5	7457705.3	522.1	DGPS	60	-90	360	1	48	47	11.2	10.5		<b>47m @ 11.2% Mn &amp; 10.5% Fe from 1m</b>
FBRC243	FB3	278449.7	7457619.5	518.4	DGPS	61	-90	360	0	51	51	9.9	10		<b>51m @ 9.9% Mn &amp; 10% Fe from 0m</b>
FBRC244	FB3	277948.0	7458082.8	517.1	DGPS	18	-90	360							NSR
FBRC245	FB3	278001.2	7457995.1	518.6	DGPS	18	-90	360	0	16	16	9.2	10.5		16m @ 9.2% Mn & 10.5% Fe from 0m
FBRC246	FB3	278058.1	7457906.9	519.4	DGPS	52	-90	360	0	43	43	10.3	10.4		<b>43m @ 10.3% Mn &amp; 10.4% Fe from 0m</b>
FBRC247	FB3	278103.3	7457815.6	519.0	DGPS	58	-90	360	0	53	53	10.0	10.4		<b>53m @ 10% Mn &amp; 10.4% Fe from 0m</b>
FBRC248	FB3	278155.7	7457731.7	519.5	DGPS	56	-90	360	0	49	49	10.0	10.3		<b>49m @ 10% Mn &amp; 10.3% Fe from 0m</b>
FBRC249	FB3	278205.3	7457646.5	519.1	DGPS	48	-90	360	0	48	48	10.0	10.1		<b>48m @ 10% Mn &amp; 10.1% Fe from 0m until EOH</b>
FBRC250	FB3	278253.0	7457564.2	517.5	DGPS	63	-90	360	0	54	54	9.8	9.9		<b>54m @ 9.8% Mn &amp; 9.9% Fe from 0m</b>
FBRC251	FB3	278287.3	7457509.3	516.8	DGPS	60	-90	360	0	54	54	9.8	9.8		<b>54m @ 9.8% Mn &amp; 9.8% Fe from 0m</b>
FBRC252	FB3	277731.1	7458068.2	514.5	DGPS	18	-90	360							NSR
FBRC253	FB3	277781.8	7457980.8	514.7	DGPS	18	-90	360							NSR
FBRC254	FB3	277833.4	7457893.9	515.5	DGPS	48	-90	360	0	36	36	10.8	9.5		36m @ 10.8% Mn & 9.5% Fe from 0m
FBRC255	FB3	277876.5	7457808.8	516.2	DGPS	75	-90	360	5	69	64	10.0	10.0		<b>64m @ 10% Mn &amp; 10% Fe from 5m</b>
FBRC256	FB3	277928.0	7457726.9	516.0	DGPS	72	-90	360	6	62	56	9.9	9.8		<b>56m @ 9.9% Mn &amp; 9.8% Fe from 6m</b>
FBRC257	FB3	277607.9	7457883.1	513.2	DGPS	36	-90	360	0	20	20	14.2	10.3		<b>20m @ 14.2% Mn &amp; 10.3% Fe from 0m</b>
FBRC258	FB3	277710.9	7457714.2	513.3	DGPS	96	-90	360	30	95	65	9.6	9.9		<b>65m @ 9.6% Mn &amp; 9.9% Fe from 30m</b>
FBRC259	FB3	278914.0	7457817.6	521.7	DGPS	18	-90	360	0	7	7	7.1	10.7		7m @ 7.1% Mn & 10.7% Fe from 0m
FBRC260	FB3	278951.8	7457758.1	522.2	DGPS	18	-90	360	0	9	9	9.8	12.2		9m @ 9.8% Mn & 12.2% Fe from 0m
FBRC261	FB3	278978.1	7457707.4	521.3	DGPS	18	-90	360	7	8	1	10.2	10.0		1m @ 10.2% Mn & 10% Fe from 7m
FBRC262	FB3	278831.6	7457761.3	520.6	DGPS	27	-90	360	0	15	15	10.4	10.2		15m @ 10.4% Mn & 10.2% Fe from 0m
FBRC263	FB3	278866.5	7457702.8	520.8	DGPS	24	-90	360	0	12	12	9.2	9.9		12m @ 9.2% Mn & 9.9% Fe from 0m
FBRC264	FB3	278689.8	7457606.5	520.2	DGPS	36	-90	360	0	25	25	10.6	9.9		25m @ 10.6% Mn & 9.9% Fe from 0m
FBRC265	FB3	278740.6	7457529.7	521.9	DGPS	26	-90	360	0	17	17	12.3	10.2		17m @ 12.3% Mn & 10.2% Fe from 0m
FBRC266	FB3	278772.9	7457461.6	520.9	DGPS	21	-90	360	0	13	13	8.6	9.9		13m @ 8.6% Mn & 9.9% Fe from 0m
FBRC267	FB3	278799.7	7457417.0	519.9	DGPS	18	-90	360	0	4	4	7.9	9.4		4m @ 7.9% Mn & 9.4% Fe from 0m



FBRC268	FB3	278513.6	7457510.5	518.5	DGPS	42	-90	360	0	33	33	10.5	9.9	33m @ 10.5% Mn & 9.9% Fe from 0m
FBRC269	FB3	278558.0	7457439.2	520.0	DGPS	36	-90	360	0	29	29	10.8	9.7	29m @ 10.8% Mn & 9.7% Fe from 0m
FBRC270	FB3	278606.1	7457362.9	522.2	DGPS	33	-90	360	0	25	25	10.8	9.7	25m @ 10.8% Mn & 9.7% Fe from 0m
FBRC271	FB3	278653.1	7457275.8	520.8	DGPS	24	-90	360	0	15	15	9.5	10.2	15m @ 9.5% Mn & 10.2% Fe from 0m
FBRC272	FB3	278702.3	7457190.8	517.6	DGPS	18	-90	360	0	2	2	8.2	7.8	2m @ 8.2% Mn & 7.8% Fe from 0m
FBRC273	FB3	278358.5	7457390.4	517.2	DGPS	45	-90	360	1	36	35	9.5	9.7	<b>35m @ 9.5% Mn &amp; 9.7% Fe from 1m</b>
FBRC274	FB3	278400.5	7457308.2	518.3	DGPS	42	-90	360	0	32	32	9.7	9.4	<b>32m @ 9.7% Mn &amp; 9.4% Fe from 0m</b>
FBRC275	FB3	278454.1	7457220.1	519.3	DGPS	36	-90	360	0	27	27	10.2	9.5	<b>27m @ 10.2% Mn &amp; 9.5% Fe from 0m</b>
FBRC276	FB3	278502.8	7457140.6	518.2	DGPS	26	-90	360	0	19	19	9.7	9.6	19m @ 9.7% Mn & 9.6% Fe from 0m
FBRC277	FB3	278545.2	7457053.5	516.6	DGPS	18	-90	360	0	13	13	8.9	10.3	13m @ 8.9% Mn & 10.3% Fe from 0m
FBRC278	FB3	278134.1	7457376.8	515.9	DGPS	36	-90	360	9	36	27	9.7	9.7	27m @ 9.7% Mn & 9.7% Fe from 9m until EOH
FBRC279	FB3	278172.9	7457295.8	516.1	DGPS	30	-90	360	0	30	30	9.4	9.6	30m @ 9.4% Mn & 9.6% Fe from 0m
FBRC280	FB3	278228.1	7457202.0	516.2	DGPS	48	-90	360	2	40	38	9.6	9.6	38m @ 9.6% Mn & 9.6% Fe from 2m
FBRC281	FB3	278281.5	7457118.2	516.4	DGPS	42	-90	360	0	34	34	9.6	9.4	34m @ 9.6% Mn & 9.4% Fe from 0m
FBRC282	FB3	278326.8	7457036.3	516.1	DGPS	36	-90	360	0	31	31	9.2	9.2	31m @ 9.2% Mn & 9.2% Fe from 0m
FBRC283	FB3	278382.7	7456944.3	515.3	DGPS	27	-90	360	0	18	18	9.9	9.2	18m @ 9.9% Mn & 9.2% Fe from 0m
FBRC284	FB3	277887.4	7457408.2	513.9	DGPS	84	-90	360	27	77	50	9.4	9.5	<b>50m @ 9.4% Mn &amp; 9.5% Fe from 27m</b>
FBRC285	FB3	277960.0	7457278.6	514.5	DGPS	30	-90	360	22	30	8	9.5	9.1	8m @ 9.5% Mn & 9.1% Fe from 22m until EOH
FBRC286	FB3	278029.9	7457156.4	514.7	DGPS	64	-90	360	11	59	48	9.5	9.5	<b>48m @ 9.5% Mn &amp; 9.5% Fe from 11m</b>
FBRC287	FB3	278147.1	7456949.5	514.5	DGPS	44	-90	360	0	36	36	9.6	9.7	<b>36m @ 9.6% Mn &amp; 9.7% Fe from 0m</b>
FBRC288	FB3	278192.2	7456876.0	514.1	DGPS	40	-90	360	0	35	35	9.4	9.6	<b>35m @ 9.4% Mn &amp; 9.6% Fe from 0m</b>
FBRC289	FB3	277645.0	7457626.0	513.0	GPS	72	-90	360	37	72	35	9.9	9.5	<b>35m @ 9.9% Mn &amp; 9.5% Fe from 37m until EOH</b>
FBRC290	FB3	277708.0	7457540.0	513.0	GPS	72	-90	360	31	72	41	9.9	9.4	<b>41m @ 9.9% Mn &amp; 9.4% Fe from 31m until EOH</b>
FBRC291	FB3	277809.0	7457542.0	513.0	GPS	72	-90	360	24	72	48	10	9.6	<b>48m @ 10% Mn &amp; 9.6% Fe from 24m</b>
FBRC292	FB3	277976.0	7457634.0	515.0	GPS	72	-90	360	7	60	53	9.7	9.7	<b>53m @ 9.7% Mn &amp; 9.7% Fe from 7m</b>
FBRC293	FB3	278013.0	7457571.0	515.0	GPS	72	-90	360	10	63	53	9.4	9.7	<b>53m @ 9.4% Mn &amp; 9.7% Fe from 10m</b>
FBRC294	FB3	278059.0	7457506.0	515.0	GPS	72	-90	360	15	65	50	9.6	9.6	<b>50m @ 9.6% Mn &amp; 9.6% Fe from 15m</b>
FBRC295	FB2	275995.0	7460431.0	510.0	GPS	36	-90	360	0	18	18	11.9	8.5	18m @ 11.9% Mn & 8.5% Fe from 0m
FBRC296	FB2	276073.0	7460375.0	508.0	GPS	30	-90	360						NSR
FBRC297	FB2	276151.0	7460314.0	507.0	GPS	24	-90	360						NSR
FBRC298	FB2	276229.0	7460251.0	511.0	GPS	30	-90	360	0	16	16	12.6	9.7	16m @ 12.6% Mn & 9.7% Fe from 0m
FBRC299	FB2	276313.0	7460180.0	509.0	GPS	63	-90	360	21	51	30	8.9	8.1	30m @ 8.9% Mn & 8.1% Fe from 21m
FBRC300	FB2	276392.0	7460129.0	511.0	GPS	42	-90	360	2	30	28	10.8	8.8	28m @ 10.8% Mn & 8.8% Fe from 2m
FBRC301	FB2	276470.0	7460068.0	511.0	GPS	42	-90	360						NSR
FBRC302	FB2	276546.0	7460007.0	512.0	GPS	42	-90	360						NSR
FBRC303	TF1	277374.0	7457881.0	513.0	GPS	42	-60	330						NSR
FBRC304	TF1	277387.0	7457857.0	513.0	GPS	42	-60	330	1	7	6	11	11	6m @ 11% Mn & 11% Fe from 1m
FBRC305	TF1	277401.0	7457838.0	513.0	GPS	48	-60	330	0	27	27	13.7	10.5	<b>27m @ 13.7% Mn &amp; 10.5% Fe from 0m</b>
FBRC306	TF1	277417.0	7457817.0	512.0	GPS	48	-60	330	0	39	39	12.3	10.4	<b>39m @ 12.3% Mn &amp; 10.4% Fe from 0m</b>
FBRC307	TF1	277444.0	7457779.0	512.0	GPS	66	-60	330	15	57	42	10.3	9.3	<b>42m @ 10.3% Mn &amp; 9.3% Fe from 15m</b>
FBRC308	TF1	277286.0	7457829.0	516.0	GPS	42	-60	330	0	5	5	13.9	12.3	5m @ 13.9% Mn & 12.3% Fe from 0m
FBRC309	TF1	277306.0	7457811.0	515.0	GPS	30	-60	330	0	19	19	12.5	10.8	19m @ 12.5% Mn & 10.8% Fe from 0m
FBRC310	TF1	277316.0	7457798.0	514.0	GPS	36	-60	330	1	29	28	11.4	10.3	28m @ 11.4% Mn & 10.3% Fe from 1m
FBRC311	TF1	277332.0	7457767.0	512.0	GPS	54	-60	330	1	43	42	11.7	11	<b>42m @ 11.7% Mn &amp; 11% Fe from 1m</b>
FBRC312	TF1	277220.0	7457758.0	515.0	GPS	30	-60	330						NSR
FBRC313	TF1	277236.0	7457740.0	514.0	GPS	36	-60	330	1	19	18	11.9	12.3	18m @ 11.9% Mn & 12.3% Fe from 1m
FBRC314	TF1	277243.0	7457719.0	513.0	GPS	42	-60	330	0	31	31	12.3	10.6	<b>31m @ 12.3% Mn &amp; 10.6% Fe from 0m</b>
FBRC315	TF1	277131.0	7457711.0	513.0	GPS	30	-60	330						NSR
FBRC316	TF1	277144.0	7457691.0	512.0	GPS	36	-60	330	3	26	23	11.7	11.4	23m @ 11.7% Mn & 11.4% Fe from 3m
FBRC317	TF1	277157.0	7457667.0	512.0	GPS	48	-60	330	0	39	39	12.3	10.7	<b>39m @ 12.3% Mn &amp; 10.7% Fe from 0m</b>
FBRC318	TF1	276933.0	7457652.0	513.0	GPS	24	-60	330	0	5	5	10.3	11.3	5m @ 10.3% Mn & 11.3% Fe from 0m
FBRC319	TF1	276946.0	7457630.0	512.0	GPS	30	-60	330	0	25	25	11.6	10.6	25m @ 11.6% Mn & 10.6% Fe from 0m
FBRC320	TF1	276959.0	7457612.0	512.0	GPS	42	-60	330	1	33	32	11.9	10.9	<b>32m @ 11.9% Mn &amp; 10.9% Fe from 1m</b>
FBRC321	TF1	276975.0	7457587.0	511.0	GPS	60	-60	330	12	54	42	11.9	10.1	<b>42m @ 11.9% Mn &amp; 10.1% Fe from 12m</b>
FBRC322	TF1	276744.0	7457585.0	510.0	GPS	24	-60	330						NSR
FBRC323	TF1	276755.0	7457566.0	510.0	GPS	32	-60	330						NSR

FBRC324	TF1	276765.0	7457545.0	510.0	GPS	30	-60	330	0	12	12	9.7	9.1	12m @ 9.7% Mn & 9.1% Fe from 0m
FBRC325	TF1	276784.0	7457527.0	510.0	GPS	30	-60	330	2	17	15	10.5	9	15m @ 10.5% Mn & 9% Fe from 2m
FBRC326	TF1	276788.0	7457495.0	510.0	GPS	42	-60	330	5	35	30	10.9	10.1	30m @ 10.9% Mn & 10.1% Fe from 5m
FBRC327	TF1	276553.0	7457513.0	509.0	GPS	24	-60	330	4	9	5	9	7.6	5m @ 9% Mn & 7.6% Fe from 4m
FBRC328	TF1	276567.0	7457488.0	509.0	GPS	36	-60	330	0	31	31	12.1	10.4	<b>31m @ 12.1% Mn &amp; 10.4% Fe from 0m</b>
FBRC329	TF1	276578.0	7457470.0	509.0	GPS	42	-60	330	7	39	32	11.9	10.8	<b>32m @ 11.9% Mn &amp; 10.8% Fe from 7m</b>
FBRC330	TF1	276583.0	7457452.0	509.0	GPS	42	-60	330	3	42	39	12.2	10.8	<b>39m @ 12.2% Mn &amp; 10.8% Fe from 3m until EOH</b>
FBRC331	T1	276402.0	7457442.0	508.0	GPS	42	-60	360	11	39	28	12.2	10.3	28m @ 12.2% Mn & 10.3% Fe from 11m
FBRC332	T1	276403.0	7457421.0	508.0	GPS	60	-60	360	21	54	33	11.4	9.9	<b>33m @ 11.4% Mn &amp; 9.9% Fe from 21m</b>
FBRC333	T1	276400.0	7457395.0	508.0	GPS	60	-60	360	28	60	32	10.8	9.5	32m @ 10.8% Mn & 9.5% Fe from 28m until EOH
FBRC334	T1	276203.0	7457443.0	507.0	GPS	24	-60	360						NSR
FBRC335	T1	276201.0	7457421.0	507.0	GPS	18	-60	360						NSR
FBRC336	T1	276198.0	7457393.0	507.0	GPS	24	-60	360	0	22	22	10	9.5	22m @ 10% Mn & 9.5% Fe from 0m
FBRC337	T1	276196.0	7457366.0	507.0	GPS	42	-60	360	1	32	31	11.3	9.2	<b>31m @ 11.3% Mn &amp; 9.2% Fe from 1m</b>
FBRC338	T1	275989.0	7457343.0	507.0	GPS	18	-60	360						NSR
FBRC339	T1	275994.0	7457313.0	507.0	GPS	36	-60	360	5	27	22	11.3	9.2	22m @ 11.3% Mn & 9.2% Fe from 5m
FBRC340	T1	275991.0	7457296.0	507.0	GPS	42	-60	360	6	34	28	11.3	9	28m @ 11.3% Mn & 9% Fe from 6m
FBRC341	T1	275993.0	7457265.0	507.0	GPS	54	-60	360	18	45	27	12.1	10.5	27m @ 12.1% Mn & 10.5% Fe from 18m
FBRC342	T1	275801.0	7457299.0	507.0	GPS	18	-60	360						NSR
FBRC343	T1	275798.0	7457276.0	507.0	GPS	36	-60	360	3	30	27	9.6	9.7	27m @ 9.6% Mn & 9.7% Fe from 3m
FBRC344	T1	275800.0	7457250.0	507.0	GPS	36	-60	360	6	36	30	12.1	10.6	<b>30m @ 12.1% Mn &amp; 10.6% Fe from 6m until EOH</b>
FBRC345	T1	275589.0	7457221.0	505.0	GPS	48	-60	360	4	39	35	13.2	10.1	<b>35m @ 13.2% Mn &amp; 10.1% Fe from 4m</b>
FBRC346	T1	275588.0	7457170.0	505.0	GPS	60	-60	360	34	60	26	9.7	8.7	26m @ 9.7% Mn & 8.7% Fe from 34m until EOH
FBRC347	FB6	276071.0	7453238.0	499.0	GPS	36	-90	360	3	29	26	9.4	7.9	26m @ 9.4% Mn & 7.9% Fe from 3m
FBRC348	FB6	275981.0	7453286.0	499.0	GPS	42	-90	360	13	42	29	8.8	7.6	29m @ 8.8% Mn & 7.6% Fe from 13m until EOH
FBRC349	FB6	275896.0	7453338.0	499.0	GPS	20	-90	360						NSR

NSR – refers to No Significant Result

## Appendix 2. JORC 2012 Table 1

### Section 1 Sampling Techniques and Data

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

Criteria	JORC Code explanation	Commentary
<i>Sampling techniques</i>	<ul style="list-style-type: none"> <li>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.</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 (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) may warrant disclosure of detailed information.</li> </ul>	<ul style="list-style-type: none"> <li>The samples were collected using industry standard Reverse Circulation (RC) drill methods .</li> <li>Drilling was completed by Westside Drilling who completed the entire RC drill program – 181 holes for 7534m</li> <li>There was limited water encountered during the drill program</li> <li>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.</li> <li>The target sample weight was between 2-3kg which is appropriate for the style of mineralisation</li> </ul>
<i>Drilling techniques</i>	<ul style="list-style-type: none"> <li>Drill type (eg core, reverse circulation, open-hole 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).</li> </ul>	<ul style="list-style-type: none"> <li>The drill type is Reverse Circulation (RC) drilling vertical holes</li> <li>The drill diameter us 5 ¼ inch RC using a face sampling hammer</li> </ul>
<i>Drill sample recovery</i>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>Sample recovery was estimated by the geologist on the rig and secondly by assessing the weight of the representative samples delivered to laboratory</li> <li>The drill recoveries were deemed acceptable with supervision of the sampling at the cone splitter</li> <li>No sample bias due to sample loss is evident from the observed sample recoveries</li> <li>The samples were drilled mostly dry again minimising sample bias</li> </ul>
<i>Logging</i>	<ul style="list-style-type: none"> <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> <li>The total length and percentage of the relevant intersections logged.</li> </ul>	<ul style="list-style-type: none"> <li>Drillhole logging was completed at the drill rig recording lithology, texture, grain size and colour.</li> <li>1m chip trays were also collected in site, photographed and used to further detailed logging post the drill program</li> <li>The logging was considered appropriate for exploration reporting and eventually Mineral Resource Estimation</li> <li>Every 1m interval as logged and sieved for inspection – 7534m</li> </ul>
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <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</li> </ul>	<ul style="list-style-type: none"> <li>The 1m RC samples were gathered by using a levelled cone splitter at the side of the rig</li> <li>The samples were dominantly dry</li> </ul>

Criteria	JORC Code explanation	Commentary
	<p><i>sampled wet or dry.</i></p> <ul style="list-style-type: none"> <li><i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></li> <li><i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></li> <li><i>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.</i></li> <li><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></li> </ul>	<ul style="list-style-type: none"> <li>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%</li> <li>The sub sampling technique and quality control procedures is considered appropriate to ensure the sample is representative</li> <li>The sample size is considered appropriate for the grainsize and style of mineralisation</li> </ul>
<b>Quality of assay data and laboratory tests</b>	<ul style="list-style-type: none"> <li><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></li> <li><i>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.</i></li> <li><i>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</i></li> </ul>	<ul style="list-style-type: none"> <li>The samples were submitted to NATA accredited ALSChemex in Wangara</li> <li>The 2 – 3kg samples was sub-split to 750gram and pulverised with 85% passing 75µm</li> <li>The sample was then analysed using method ME-XRF26s for manganese ores using fusion disc XRF for Fe, SiO<sub>2</sub>, Mn, Al<sub>2</sub>O<sub>3</sub>, TiO<sub>2</sub>, P<sub>2</sub>O<sub>5</sub>, S, MgO, K<sub>2</sub>O, Na<sub>2</sub>O, CaO, BaO, Cr<sub>2</sub>O<sub>3</sub> and ZrO<sub>2</sub></li> <li>Review of the quality control results received to date that include CRM, blanks, duplicates show an acceptable level of accuracy and lack of bias) and precision has been achieved.</li> <li>In addition ALSCHEMEX has undertaken its own internal QAQC checks using CRM, Blanks and pulp duplicates and no issues have been reported or identified</li> <li>The CP is satisfied that the analysis was completed to an acceptable standard in the context in which the results have been reported</li> </ul>
<b>Verification of sampling and assaying</b>	<ul style="list-style-type: none"> <li><i>The verification of significant intersections by either independent or alternative company personnel.</i></li> <li><i>The use of twinned holes.</i></li> <li><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></li> <li><i>Discuss any adjustment to assay data.</i></li> </ul>	<ul style="list-style-type: none"> <li>The significant intersections have not been verified by independent personnel but have been peer reviewed internally for accuracy</li> <li>The results do not show evidence of bias compared to the previous drill results and block model estimates and no assay data has been adjusted</li> </ul>
<b>Location of data points</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> <li><i>Specification of the grid system used.</i></li> <li><i>Quality and adequacy of topographic control.</i></li> </ul>	<ul style="list-style-type: none"> <li>Once a drill hole was completed the drill collar was located using a GARMIN handheld GPS with an accuracy of +/- 5m</li> <li>At LR1 and FB3 a the drill collars were also picked with a DGPS</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>
<b>Data spacing and distribution</b>	<ul style="list-style-type: none"> <li><i>Data spacing for reporting of Exploration Results.</i></li> <li><i>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.</i></li> <li><i>Whether sample compositing has been applied.</i></li> </ul>	<ul style="list-style-type: none"> <li>The drill spacing of the RC drill program at FB3 and LR1 was approximately 100m line spacing with holes drilled 100m apart</li> <li>The drill hole spacing is considered appropriate for this stage of advanced exploration with a high level of geological and mineralisation confidence and no further infill drilling is currently planned</li> <li>The drill spacing at L1 to TF1 was on</li> </ul>





## BLACK CANYON

Criteria	JORC Code explanation	Commentary
		<p>200m spaced lines with angled holes centred at 25 or 50m spacings on the lines.</p> <ul style="list-style-type: none"><li>No samples compositing has been applied</li></ul>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"><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>	<ul style="list-style-type: none"><li>The LR1 deposit is flat and gently plunging. Drill logs and assay data have identified cross cutting dolerite dykes that may have intruded into zones of structural weakness which does appear at this early stage to terminate the prospective horizon to the south</li><li>The FB3 deposit is gently folded and plunging shallowly to the south west. It is generally flat lying and openly folded.</li><li>The geology at L1 and TF1 is also gently to moderately dipping to the south east</li><li>The drill hole orientation otherwise is suitable for this style of mineralisation and considered appropriate and unlikely to introduce sample bias</li></ul>
<i>Sample security</i>	<ul style="list-style-type: none"><li>The measures taken to ensure sample security.</li></ul>	<ul style="list-style-type: none"><li>The samples were collected in bulk bags, sealed with cable ties and stored on site until the drill program was completed</li><li>The samples were then trucked to Perth in two consignments and delivered directly to ALSCHEMEX in Wangara. The bulka bags were inspected and audited by ALSCHEMEX who did not report any suspicious or tampered samples</li></ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"><li>The results of any audits or reviews of sampling techniques and data.</li></ul>	<ul style="list-style-type: none"><li>Other than internal review by Company staff no audits have been completed.</li><li>The CP was on site for parts 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
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint 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 with any known impediments to obtaining a licence to operate in the area.</li> </ul>	<ul style="list-style-type: none"> <li>The drilling was undertaken on granted tenement E46/1301</li> <li>Black Canyon has a farm-in and joint venture agreement with Carawine Resources Ltd (ASX:CWX), Black Canyon has earned an initial 51% interest and is now earning up to 75% in the Carawine Projects that includes E46/1301</li> <li>The tenement has a native title Heritage Protection Agreement with the Karla Nyiyaparli People that required a Heritage Survey to be undertaken prior to ground disturbing activities. To this end an Ethnographic and Archeologic survey was completed prior to commencement of site activities</li> <li>There are no other known impediments to exploring E46/1301</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>Previous work on the tenure includes exploration by Sentinel Mining Company carried out in 1968 in the general area of Balfour Downs. The exploration work included rock chip sampling from the southern edge of E46/784 which returned three samples with manganese values of 21.6 %, 25.7% and 11.4% Mn within manganese surface enrichment of Balfour Shales.</li> <li>Consolidated Global Investment Pty Limited ('CGI') owned tenement E46/784 between 2010 and 2015 and carried out exploration work.</li> <li>Early reconnaissance work completed by CGI delineated many occurrences of manganese enriched outcroppings of the Balfour Formation. These north south striking outcrops were continuous over a distance of 1 km with widths of 50 m to 90 m in the LR1 Prospect area. Further exploration work completed by CGI included identification of prospective area using google images and remote sensing, a heritage survey and clearance for drilling using local Martu consultants. CGI completed a reverse circulation drilling programme of 22 holes in July 2012 on E46/784.</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li>Deposit type, geological setting and style of mineralisation.</li> </ul>	<ul style="list-style-type: none"> <li>The Flanagan Bore tenement is located within the Oakover Basin, the edges of which are defined by the Neoproterozoic Fortescue Group. Most of the tenement is covered by quaternary alluvium, sheetwash and outcrop only exists within the southern part and consists of rocks of the Manganese Group, mainly the Encheddong Dolomite and Balfour Formation. The tenement contains widespread manganese scree associated with manganese enriched Balfour Formation shales</li> <li>The prospects can be separated into three primary units, the upper unmineralised Balfour shale, the mineralised Balfour shale and the lower basal shale unit. The upper unmineralised shale is brown grey in</li> </ul>



Criteria	JORC Code explanation	Commentary
		<p>colour and occurs from surface up to 10 m in depth intermittently across the project area.</p> <ul style="list-style-type: none"> <li>The manganiferous shale unit contains a supergene enriched manganiferous horizon which exhibits thickness range between 15 m to 37 m depth gently dipping to the south, progressively thickening to the east-south-east. The manganese layers are confined to distinct banding within the Balfour and there are also minor occurrences of interbedded red/brown shales intermixed within saprolitic clay bands.</li> </ul>
<b>Drill hole Information</b>	<ul style="list-style-type: none"> <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: <ul style="list-style-type: none"> <li>easting and northing of the drill hole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in 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> </ul> </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>	<ul style="list-style-type: none"> <li>Refer to Appendix 1 for a complete listing of all of the RC drill results reported from the May/June program</li> <li>All assay results have now been reported drill program</li> </ul>
<b>Data aggregation methods</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <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 1 m of dilution (&lt;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>
<b>Relationship between mineralisation widths and intercept lengths</b>	<ul style="list-style-type: none"> <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 style="list-style-type: none"> <li>The deposit is mostly flat lying exhibiting a gentle dip of mineralisation to the south, south-west therefore 90 degree angled (vertical) drill holes considered appropriate.</li> <li>The mineralisation of the LR1 prospect is primarily strata bound striking approximately 80 to 90 degrees, gently dipping to the south</li> <li>The mineralisation of the FB3 prospect is primarily strata bound striking approximately 45 degrees, gently dipping to the southwest about a regional syncline</li> <li>The mineralisation along the L1 to TF1 trend is primarily strata bound striking approximately 45 degrees, gently dipping to the southeast and forms the fold limb from the adjacent FB3 syncline.</li> <li>The drill results reported are</li> </ul>



Criteria	JORC Code explanation	Commentary
		<p>interpreted to represent close to true widths of the mineralisation in the case of the vertical holes.</p> <ul style="list-style-type: none"> <li>The angled holes drilled along the L1 to TF1 trend reported as downhole intervals in this release are intersecting the mineralised horizon at a relatively high angle. It is estimated that the true thickness of the drill intersects reported at L1 and TF1 represent 95% of the actual reported intersection. ie 30m reported intersection is 28.5m actual width. This variation is not considered significant.</li> </ul>
<b>Diagrams</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>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 reported.</li> </ul>
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <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 results of the holes completed at LR1 and FB3. Holes denoted with NSR describing holes without significant manganese results above the &gt; 7% Mn cut-off..</li> </ul>
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li><i>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.</i></li> </ul>	<ul style="list-style-type: none"> <li>All information considered material to the reader's understanding and context of the RC Exploration Results have been reported.</li> </ul>
<b>Further work</b>	<ul style="list-style-type: none"> <li><i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i></li> <li><i>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</i></li> </ul>	<ul style="list-style-type: none"> <li>Further work is planned that includes: detailed metallurgical testwork on diamond drill core, environmental and hydrogeological investigations</li> <li>The Company is intending to update the Mineral Resource LR1 now that all of the drill information has been received</li> </ul>