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## SUBSTANTIAL INCREASE IN PANDA HILL RESOURCE

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### Highlights

- The Primary Carbonatite Mineral Resource is increased to 167Mt at 0.50% Nb<sub>2</sub>O<sub>5</sub>
  - Representing a 90% increase in tonnage (up from 88Mt at 0.52% Nb<sub>2</sub>O<sub>5</sub>)
- The Measured and Indicated Mineral Resource is increased to 69Mt at 0.53% Nb<sub>2</sub>O<sub>5</sub>
  - Representing a 68% tonnage increase (up from 41Mt at 0.54% Nb<sub>2</sub>O<sub>5</sub>)
- The Mineral Resource includes a high grade component of 57Mt at 0.70% Nb<sub>2</sub>O<sub>5</sub> (above a 0.52% cut-off)
  - Includes 26Mt at 0.72% Nb<sub>2</sub>O<sub>5</sub> in Measured and Indicated Categories
  - Allows for DFS optimisations to target 0.70% mineralisation initially
- All resource information for the DFS study is now finalised
- Based upon further geological mapping and sampling, there is an Exploration Target of 200 - 400Mt at 0.40% to 0.60% Nb<sub>2</sub>O<sub>5</sub>, potentially a further doubling of the size of the Mineral Resource (see JORC Statement below)

Cradle Resources Limited ("Cradle") is pleased to announce that the updated 2015 Mineral Resource for the Panda Hill Niobium Project has been completed. The Mineral Resource was undertaken by the independent mining consultants Coffey Mining based in Perth, Western Australia. The 2015 Mineral Resource has been reported in accordance to the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, The JORC Code 2012 Edition.

The updated total Mineral Resource (Weathered and Primary Carbonatite, Indicated and Inferred) contains **178.2Mt at 0.50% Nb<sub>2</sub>O<sub>5</sub>** for 891,000 tonnes of contained Nb<sub>2</sub>O<sub>5</sub> reported at a 0.30% Nb<sub>2</sub>O<sub>5</sub> cut off, and is based predominantly on new drilling undertaken in 2013 and 2014. The Multiple Indicator Kriging ("MIK") method used incorporates both mining selectivity and internal dilution in its SMU model.

This program has significantly increased the endowment of expected higher metallurgical recovery Primary Carbonatite mineralisation to **166.8Mt at 0.50% Nb<sub>2</sub>O<sub>5</sub>** for 828,000 tonnes of Nb<sub>2</sub>O<sub>5</sub> (at a 0.30% Nb<sub>2</sub>O<sub>5</sub> cut off) which represent an 80% increase in metal to the December 2014 estimate. The increase in Primary Carbonatite mineralisation incorporates depth extensions due to drilling in the Angel Zone, as well as extensions on strike to the North and South of the deposit.

Significantly, this new drilling has enabled a substantial increase in Primary Resource Measured and Indicated material to **68.8Mt at 0.53% Nb<sub>2</sub>O<sub>5</sub>** for 362,000 tonnes of Nb<sub>2</sub>O<sub>5</sub>.

**Grant Davey, the Managing Director of Cradle, commented:** "This is an outstanding result which exceeded our expectations. We were mostly drilling to increase the confidence in the core resource area into the Measured and Indicated categories, which we achieved. We now have 32 years mine life (at 2mtpa) in these high confidence categories. However, we have also substantially increased the total Mineral Resource, due to successful extensional drilling and depth increases in the core area. And there is potential to double the size of the Mineral Resource again. It is now clear that Panda Hill is a world class Niobium asset; a massive open-cut deposit with unusually favourable metallurgy. Panda Hill has the potential to deliver high quality ferroniobium over a very long period of time, which makes it a globally relevant, strategic asset."

The updated 2015 Mineral Resource is summarised below in Table 1 by weathering type. The JORC Code reporting criteria and input parameters used for the resource estimate are summarised in Appendix 1.

<b>Table 1</b> <b>2014 Panda Hill 2015 Mineral Resource</b> <b>Reported Above a 0.3% Nb<sub>2</sub>O<sub>5</sub> Lower Cut-off</b>			
Combined			
Classification	Million Tonnes	Nb <sub>2</sub> O <sub>5</sub> %	Nb <sub>2</sub> O <sub>5</sub> Content (kt)
Measured	16	0.63	99
Indicated	53	0.50	263
Inferred	109	0.48	528
<b>Total</b>	<b>178</b>	<b>0.50</b>	<b>891</b>
Primary Carbonatite <sup>1</sup>			
Classification	Million Tonnes	Nb <sub>2</sub> O <sub>5</sub> %	Nb <sub>2</sub> O <sub>5</sub> Content (kt)
Measured	14	0.62	84
Indicated	50	0.49	247
Inferred	103	0.48	496
<b>Total</b>	<b>167</b>	<b>0.50</b>	
Weathered Carbonatite <sup>2</sup>			
Classification	Million Tonnes	Nb <sub>2</sub> O <sub>5</sub> %	Nb <sub>2</sub> O <sub>5</sub> Content (kt)
Measured	2	0.67	15
Indicated	3	0.53	15
Inferred	6	0.52	32
<b>Total</b>	<b>11</b>	<b>0.55</b>	<b>63</b>
Note: Figures have been rounded. <sup>1</sup> Primary Carbonatite is defined as a region of fresh to Moderately Oxidised material dominated by carbonatite lithologies. This material is expected to have a higher metallurgical recovery. <sup>2</sup> Weathered Carbonatite is a region dominated by strongly oxidised material comprising weathered carbonatite with other mixed lithologies. This material is expected to have a lower recovery than the Primary Carbonatite material.			

Cradle has drill tested only a third of the carbonatite outcrop to date, and the deposit is still sparsely drilled towards the south, the north, and the west, and is open at depth (Figures 1 to 3). Geological mapping undertaken by Cradle in 2014 of the broader carbonatite has shown that many of regions previously mapped as Fenite (pink in Figures 1 and 4) contain outcrops of carbonatite and magnetite-carbonatite which are mineralised at surface. These regions have the potential to allow for lateral expansion of the current Mineral Resource.

Accordingly, the deposit has an Exploration Target of between 200Mt to 400Mt at a grade of between 0.40% and 0.60% Nb<sub>2</sub>O<sub>5</sub> (see announcement 23 April 2015) that covers the region outside of the boundary of the current Mineral Resource (Figure 4).

*JORC statement: The Exploration Target is conceptual in nature as there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the determination of a Mineral Resource under the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, the JORC Code" (JORC 2012). The Exploration Target is not being reported as part of any Mineral Resource or Ore Reserve.*

The 2015 Mineral Resource incorporated the results of 46 diamond and 98 RC holes drilled by Cradle from 2013 to December 2014 with 11,400 samples taken for the 20,100 metres drilled. The 2014 Mineral Resource was estimated using MIK on 2m composites with a 25m x 25m by 5m (X x Y x Z) panel to generate a recoverable estimate emulating an SMU of 6.25m x 12.5m x 5m.

Niobium analysis has been undertaken by SGS Johannesburg using the XRF Borate fusion process. Cradle adheres to industry best-practice in conducting Quality Assurance Quality Assumptions ("QAQC") procedures by inserting blanks

and certified niobium standards at a rate of 1:20 samples. The QAQC data for the Project has been reviewed by Cradle's Competent Person, Mr Neil Inwood.

Representative metallurgical samples have been previously sent to SGS Lakefield in Canada with positive test work results already announced.

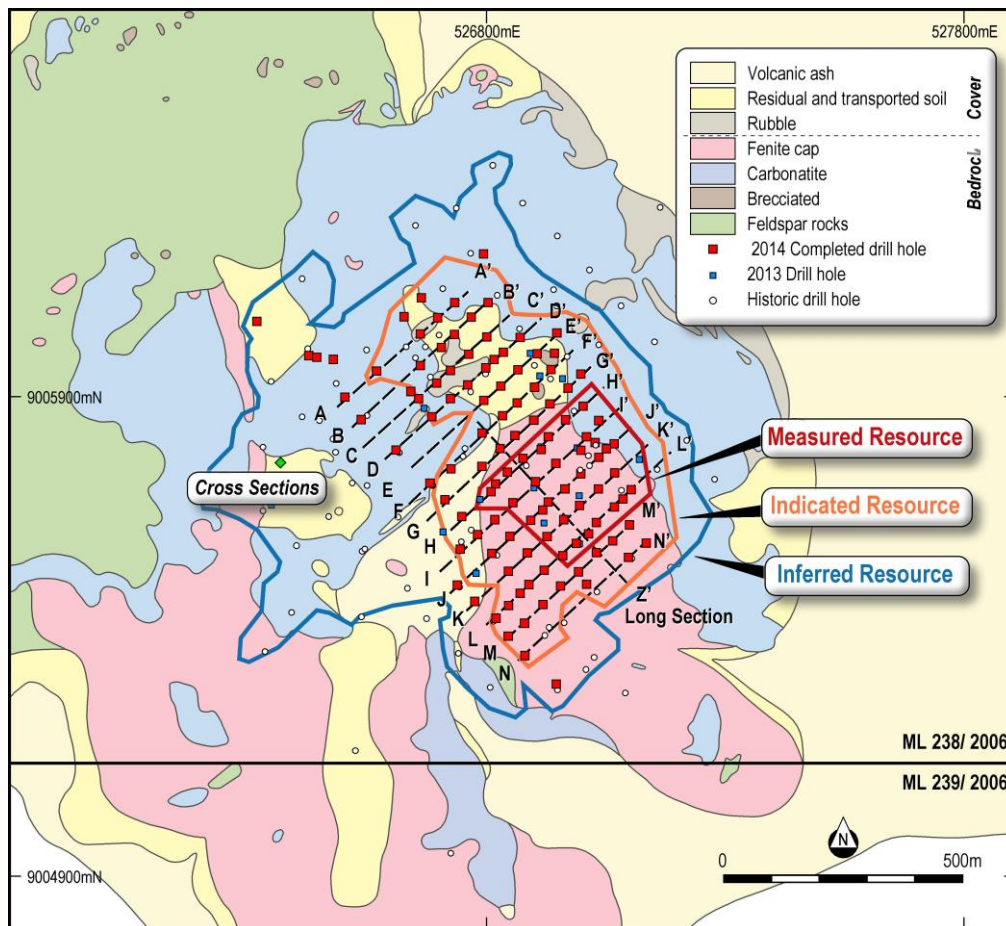


Figure 1 - Geology plan showing the 2015 Mineral Resource regions. The regions in blue (carbonatite) and pink (Fenite Cap) are both highly prospective with field mapping showing carbonatite and magnetite-carbonatite outcrop contained within many of these areas.

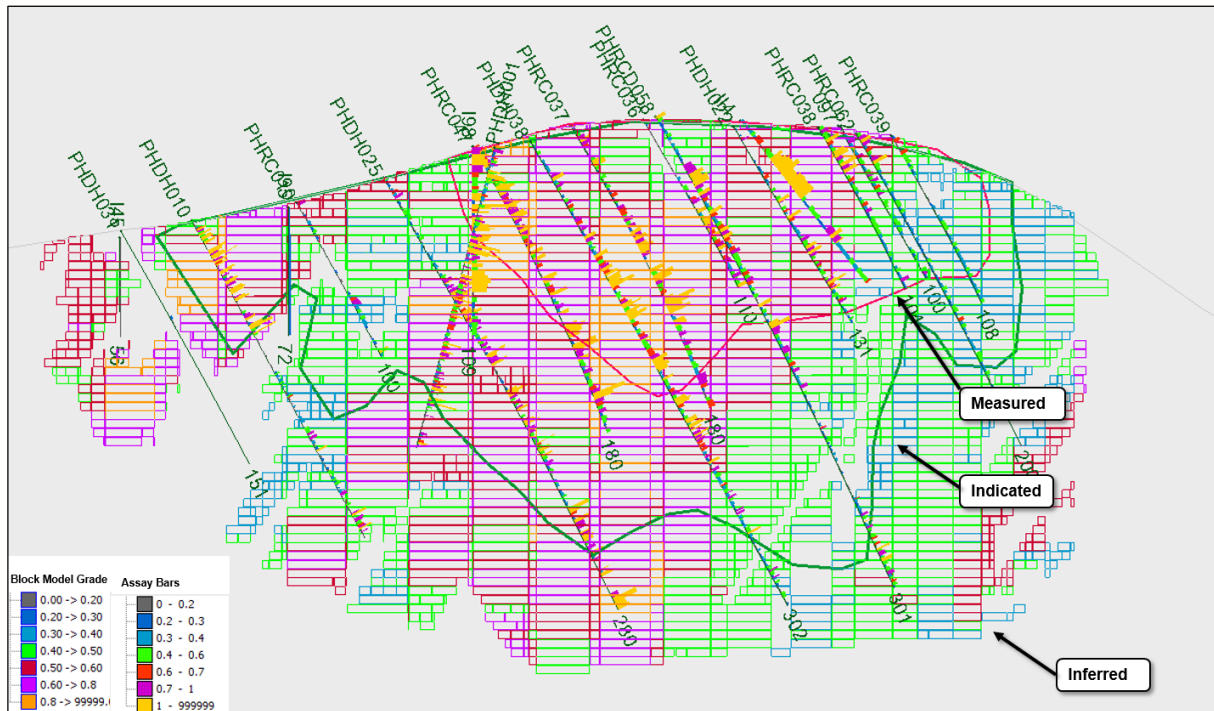


Figure 2 - Cross-section (J) showing block model grade (above 0.3% SMU), drill hole grade bars and resource classification.

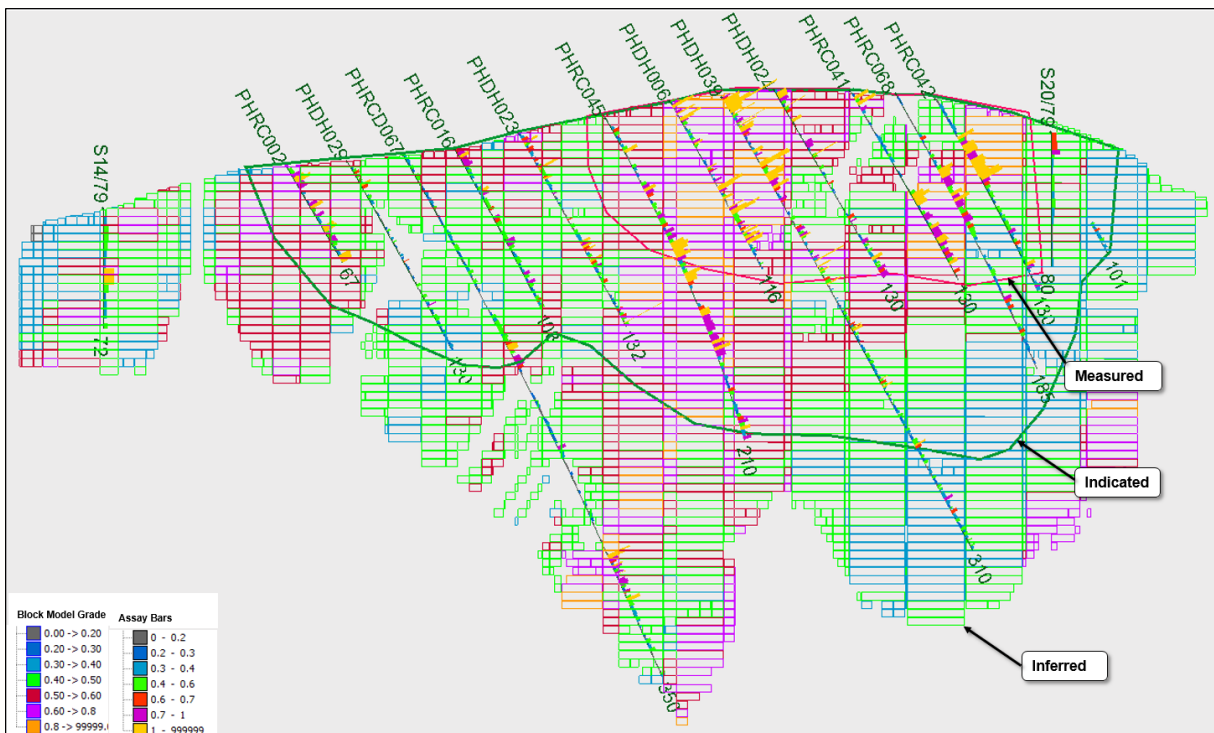


Figure 3 - Cross-section (K) showing block model grade (above 0.3% SMU), drill hole grade bars and resource classification.



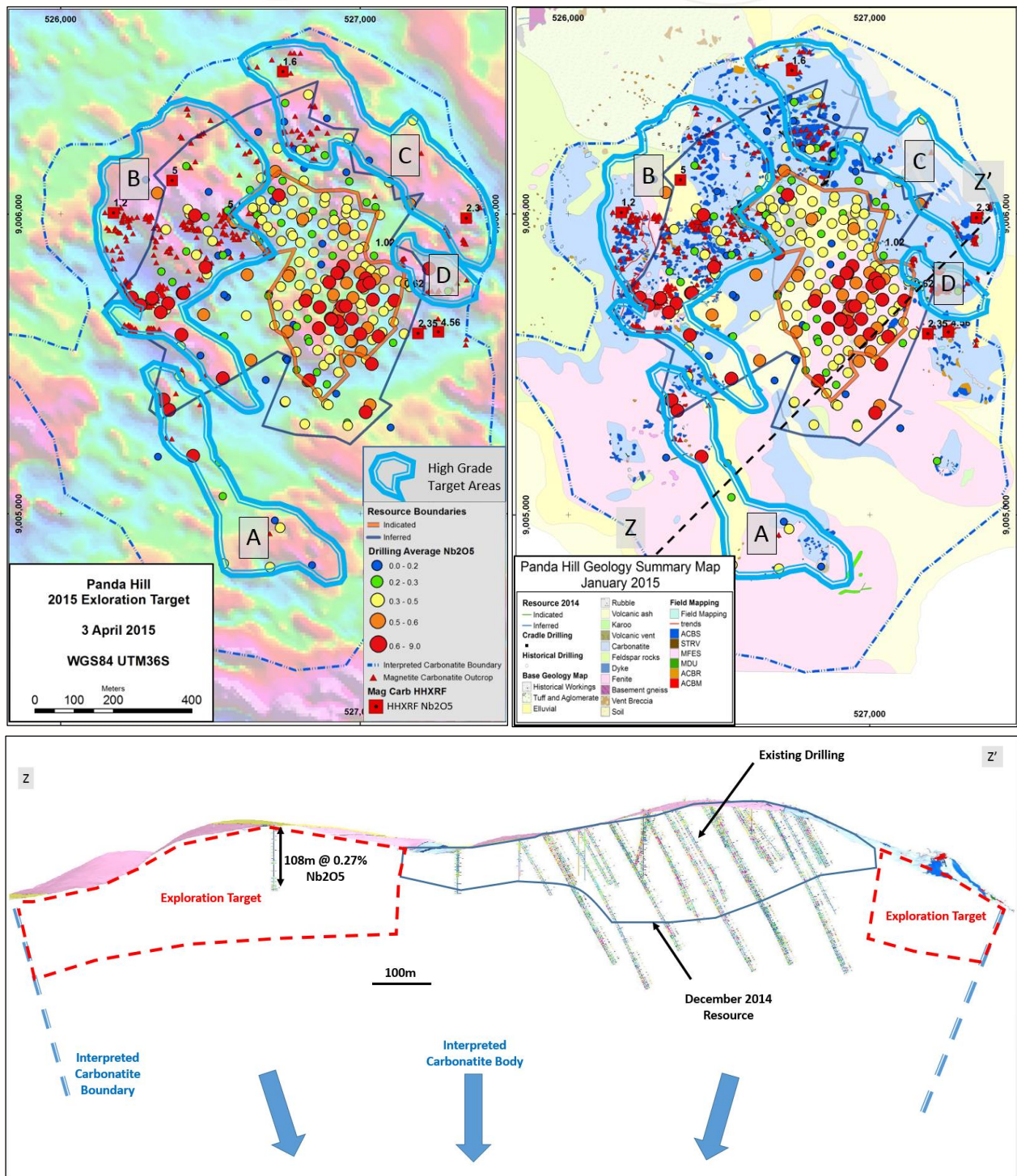


Figure 4 - **Top:** The Exploration Target is contained within the boundary of the carbonatite and outside of the shadow of the current Mineral Resources. Target regions for potential high-grade mineralisation identified from a combination of mapping, drilling and airborne magnetic data. The first derivative magnetic data (left hand side) shows magnetic trends that have a high correlation to mapped mineralised magnetite-carbonatite outcrop (right hand side). Both images show average drill hole grade or pitting (circles), mapped magnetite carbonatite exposure (red triangles), magnetite carbonatite handheld XRF samples (HHXRF – red squares - % Nb<sub>2</sub>O<sub>5</sub>). **Bottom:** Example cross section (Z-Z') showing the region of the exploration target with a nominal 200m depth.

*By order of the Board*

For further information, please visit [www.cradleresources.com.au](http://www.cradleresources.com.au) or contact:

Grant Davey    Managing Director    Tel: +61 8 9389 2000

**Competent Persons' Statements**

*The information in this document that relates to the Panda Hill Mineral Resource is based on information provided by Mr Ingvar Kirchner, who is a Fellow of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists, and by Ms Ellen Maidens, who is a Member of the Australian Institute of Geoscientists. Both are full time employees of Coffey Mining Ltd and have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2012 edition of the "Australasian Code for Reporting of Mineral Resources and Reserves". Mr Kirchner and Ms Maidens have consented to the inclusion of this information in this document in the form and context in which it appears.*

*The information in this document that relates to the Exploration target, Panda Hill Geology and Historic Data, Exploration Data, and Geology is based on information provided by Mr Neil Inwood, who is a Fellow of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists. Mr Inwood is a full time employee of Verona Capital and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Mineral Resources and Reserves". Mr Inwood has consented to the inclusion of this information in this document in the form and context in which it appears.*

*With respect to the Exploration Target announced on 23 April 2015, the Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.*

*Under the JORC Code (2012), Clause 9, consent has been sought and obtained from all Competent Persons listed above for any initial public release of information related to this resource estimate and associated report. The Panda Hill Resource Report is available on the Cradle website: [www.cradleresources.com.au](http://www.cradleresources.com.au)*

**Appendix 1 – Mineral Resource and JORC tables**

## Memorandum

<b>Recipient name</b>	Neil Inwood	<b>Recipient company</b>	Cradle Resources
		<b>Memo date</b>	29/04/2015
<b>Author</b>	Ellen Maidens	<b>Project number</b>	MINEWPER01023AG
<b>Memo Subject</b>	Panda Hill April 2015 MIK SMU Model Resource Estimate Update		

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## Executive Summary

Coffey Mining Pty Ltd (Coffey) has been retained by Cradle Resources Limited (Cradle) to undertake a resource estimate for the Panda Hill niobium ( $\text{Nb}_2\text{O}_5$ ) deposit in south-western Tanzania (Figure 1).

Principle activities undertaken in the study are as follows:

- On completion of drilling and compilation of assay and geology data from the new resource definition drillholes, a Multiple Indicator Kriging Selective Mining Unit (MIK SMU) resource model was required for Nb and other ancillary variables. This involved:
  - Import the existing drillhole data.
  - Generate grade shells through Probability modelling to use as a mineralisation envelope for MIK estimation purposes.
  - Drillhole data flagging and composition of the data relevant to the mineralised envelope.
  - Using the selected grouping of data for the mineralised envelope, evaluate the statistics for the following elements/variables within the mineralisation envelope:
    - $\text{Nb}_2\text{O}_5_{\text{pct}}$
    - $\text{CaO}_{\text{pct}}$
    - $\text{Fe}_2\text{O}_3_{\text{pct}}$
    - $\text{SiO}_2_{\text{pct}}$
    - $\text{TiO}_2_{\text{ppm}}$
    - $\text{Ta}_{\text{ppm}}$
    - Oxidation flags
    - Multiple indicator variables
    - Bulk density (BD)
  - Block model preparation.



- Resource estimation using MIK incorporating change of support (COS) to produce an SMU model for Nb<sub>2</sub>O<sub>5</sub>. Ordinary Kriging (OK) was used to estimate the ancillary elements Fe<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, CaO, TiO<sub>2</sub> and Ta.
- Probability modelling of lithology (Fenites/Carbonatite), oxidation/weathering flags and recovery from diamond drilling.
- Review and classification of the resource estimate.
- Report the resource estimate for a range of cut-offs.
- Technical review of available QAQC data for all resource definition drilling data.
- Resource model documentation.

Drillhole sample data was sourced from Cradle and represents work carried out by Cradle since 2013 as well as the compiled historic drilling data.

The data files were supplied as MS Access database extracts from Datashed, with tables for collar, survey, assay, lithology, core recovery, density, structure (geotechnical), structure (orientations), hand held XRF results, metadata, assays (QC), assays (standards). Neil Inwood from Cradle is acting as Competent Person for the data and geology. Database information was validated by Coffey in MS Access. The checks made to the database prior to resource estimation included checks for overlapping intervals, consistency of depths between different data tables, gaps in the data, irregular collar coordinates and that there were downhole surveys at 0m.

For the Panda Hill deposit, the database used for resource modelling contained:

- 38 surface diamond drillholes for 5,449.32m drilled by Cradle.
- 87 surface RC drillholes for 12,108m drilled by Cradle.
- 8 surface RC/diamond tail drillholes for 2,314.4m drilled by Cradle.
- 33 surface historic diamond drillholes for 2,388.56m drilled by previous owners of the project.

Note that 65 historic drillholes were deliberately removed from the database, having been essentially superseded by new drilling. Three RC drillholes drilled by Cradle were removed from the resource database as they lie north of the resource area. Two diamond drillholes drilled by Cradle were not included in the resource database as they were used as geotechnical drillholes.

The drillhole data was limited to the immediate resource area. Drillholes used in the resource estimate are shown in Figure 2 and listed with collar coordinates in Table 1

Drillholes in the main resource area are spaced at 25m to 50m centres on 50m spaced drilling sections oriented approximately NE-SW. Peripheral to this, drilling is on 50m to 100m spaced centres on 50m to 100m spaced drilling sections. The majority of drillholes are angled with dips of -60° towards 046°, targeting the SW dipping carbonatites and the pyrochlore-rich flow banding entrained within the carbonatites. Typical cross-sections showing the drilling are presented in Figure 3 and Figure 4.

Assaying for Nb<sub>2</sub>O<sub>5</sub> was by Borate fusion XRF carried out by SGS in Johannesburg. This method also provides assays for a multi-element suite including Fe<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, CaO, TiO<sub>2</sub> as well as other major elements. Drillholes were sampled in their entirety except where there was no sample due to intersection of cavities. Diamond core was sampled on geological intervals, generally of 1m length. RC holes were sampled as 2m composites.

QAQC data was supplied with the data and consisted of results for certified standards, blanks, field duplicates, coarse reject duplicates and umpire duplicates from the 2013 and 2014 drilling programmes.

The Panda Hill database contains approximately 3,740 calliper method bulk density determinations collected from the surface diamond holes drilled in 2013 and 2014.

Geological data was reviewed by Coffey. Niobium mineralisation at Panda Hill is found within pyrochlore and lesser columbite. The bulk of the known mineralisation is located within carbonatite lithologies, with Nb<sub>2</sub>O<sub>5</sub> grades typically ranging from 0.1% to 1%. Higher-grade niobium mineralisation is noted within flow-banding ("schlieren") within the carbonatite, particularly in magnetite-rich zones and within the surficial weathered cap.

An indicator-based grade shell (IND0P30) was generated using a 0.3% Nb<sub>2</sub>O<sub>5</sub> indicator threshold on all data and a (0.2) 20% Probability (IND0P30 > 0.2) for use in the MIK modelling (Zonecode 100). Wireframe surfaces were created to mark the divisions between mostly completely oxidised material, transitional material, and mostly fresh material. All wireframes were snapped to drillholes.

The drillhole database, coded with the mineralisation, lithology and oxidation domains, was composited to a regular 2 metre downhole composite length as a means of achieving a uniform sample support. The compositing used a residual retention process that prevents loss of data near the division margins. The decision to produce 2 metre composites considered the common raw sampling intervals in the drillholes data, open pit mining scenario and related parent cell sizes used for modelling. Subsequently, the composite data file was statistically validated and accepted.

A three-dimensional block model was generated for the Panda Hill deposit to enable grade estimation via MIK. The block model block size was selected largely as a compromise for adequate volume definition of the mineralisation envelope, the current drillholes spacing, and an open pit mining scenario. The block model constructed for mineral resource estimation was based on a 25mE x 25mN x 5mRL parent panel size with an appropriate level of sub-celling to define the mineralisation wireframe volume.

Statistical analysis was carried out on the 2 metre composites of the drillhole sample data for the elements, bulk density and indicator variables. No top cut is used in the MIK estimation and a top cut of 3% Nb<sub>2</sub>O<sub>5</sub> was applied to the Nb<sub>2</sub>O<sub>5</sub> composites used for variography and for the Nb<sub>2</sub>O<sub>5</sub> OK estimation used for block validation purposes. No top cuts were applied to Fe<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, CaO, Ta or TiO<sub>2</sub>.

Twelve indicator cut-offs for the Nb<sub>2</sub>O<sub>5</sub> data were selected for the MIK modelling.

De-clustered statistics and MIK bin grade statistics were generated for the MIK estimation process.

Variography was generated for the Zonecode 100 Nb<sub>2</sub>O<sub>5</sub> cut data and selected indicator variables, and also for Fe<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, CaO, and TiO<sub>2</sub>. The Nb<sub>2</sub>O<sub>5</sub> data demonstrated a typical 45% relative nugget variance and moderately to well-structured variograms. Similarly, the variogram models for 8 of the 12 indicators were reasonably well-structured and demonstrated the expected increasing nugget variance and decreasing ranges with increasing indicator cut-off value. The modelled variography is consistent with both the geological modelling and the style of mineralisation. The major axis of the variograms was oriented along strike (0°→315°) and the semi-major axis oriented along the down dip (-60°→225°) direction. The three oxidation Probability fields were oriented horizontally with major axis oriented along strike (0°→315°) and the semi-major axis oriented horizontally (0°→225°).

Multiple Indicator Kriging was applied for grade estimation at Panda Hill. Considering the mixed material types, variable grades, skew distributions and potentially complex local geometries, MIK is considered a robust estimation methodology for this type of mineralisation. MIK grade estimation with change of support has been applied to produce "recoverable niobium" estimates for a range of cut-off grades targeting a Selective Mining Unit of 6.25m x 12.5m x 5m. The additional elements Fe<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, CaO, Ta and TiO<sub>2</sub> were estimated using OK.

A variance adjustment factor was applied to emulate a 6.25m x 12.5m x 5m SMU via the indirect lognormal change of support method. Average in-situ dry bulk densities were assigned on the basis of measurements collected for the 2013 and 2014 drill core using the calliper method. After statistical review of the 3,743 density measurements, average bulk density values have been applied to the block model as follows: for waste material, values of 2.27t/m<sup>3</sup>, 2.54 t/m<sup>3</sup> and 2.68t/m<sup>3</sup> have been applied to oxide, moderately oxide and fresh domains respectively. For mineralised material, bulk density values of 2.04t/m<sup>3</sup>, 2.54t/m<sup>3</sup> and 2.65t/m<sup>3</sup> have been applied to oxide, moderately oxidised and fresh domains respectively. These density values are slightly lower than those used in the December 2014 Resource estimate. The bulk density values for mineralisation incorporate a 6% void factor for oxide material, and a 3% void factor for transitional and fresh material based on statistical estimates of recorded voids/cavities.

The use of a Probability based grade shell has resulted in more tonnes and more metal, particularly at low cut-offs, due to the removal of much of the waste material / below cut-off grades from the mineralised envelope.

Based on the MIK SMU model, a Measured, Indicated and Inferred Mineral Resource has been defined in accordance with the criteria set out in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, published by the Joint Ore Reserves Committee (JORC) of the Australasian Institute of Mining and Metallurgy, the Australian Institute of Geoscientists, and Minerals Council of Australia. The criteria used to classify the Mineral Resource include the robustness of the input data, the confidence in the geological interpretation including the predictability of both structures and grades within the mineralised zones, the distance from data, the amount of data available for block estimates within the mineralised zone as well as other considerations outlined in the JORC Code 2012 Table 1 below.

The Mineral Resource for the Panda Hill Niobium Project classified in accordance with the JORC Code 2012 is reported in Table 1 below.

For and on behalf of Coffey

This is a scanned signature held on file by Coffey.  
The person and signatory consents to its use only  
for the purpose of this document.

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**Ellen Maidens**  
Resource Geologist

Table 1 – Summary Table – Panda Hill In situ Mineral Resource

Oxidation/ Weathering	Lower Cut-off Grade	Measured Resource			Indicated Resource			Inferred Resource			Total Measured+ Indicated + Inferred		
		Tonnes (kT)	Nb <sub>2</sub> O <sub>5</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> Metal (kT)	Tonnes (kT)	Nb <sub>2</sub> O <sub>5</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> Metal (kT)				Tonnes (kT)	Nb <sub>2</sub> O <sub>5</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> Metal (kT)
Oxidised	0.28	2,320	0.66	15.3	3,028	0.52	15.9	6,489	0.51	33.0	11,838	0.54	64.2
	<b>0.30</b>	<b>2,279</b>	<b>0.67</b>	<b>15.2</b>	<b>2,897</b>	<b>0.53</b>	<b>15.5</b>	<b>6,217</b>	<b>0.52</b>	<b>32.2</b>	<b>11,393</b>	<b>0.55</b>	<b>62.9</b>
	0.32	2,228	0.67	15.0	2,750	0.55	15.0	5,918	0.53	31.3	10,896	0.56	61.3
	0.34	2,166	0.68	14.8	2,589	0.56	14.5	5,566	0.54	30.1	10,320	0.58	59.4
	0.35	2,131	0.69	14.7	2,501	0.57	14.2	5,338	0.55	29.4	9,971	0.58	58.2
	0.36	2,096	0.69	14.5	2,411	0.58	13.9	5,103	0.56	28.5	9,609	0.59	56.9
	0.38	2,016	0.71	14.3	2,225	0.59	13.2	4,654	0.58	26.9	8,895	0.61	54.3
	0.40	1,931	0.72	13.9	2,035	0.61	12.5	4,263	0.59	25.4	8,230	0.63	51.7
Moderately Oxidised	0.28	6,639	0.65	43.2	13,396	0.50	66.7	19,554	0.50	98.4	39,589	0.53	208.3
	<b>0.30</b>	<b>6,501</b>	<b>0.66</b>	<b>42.8</b>	<b>12,690</b>	<b>0.51</b>	<b>64.7</b>	<b>18,658</b>	<b>0.51</b>	<b>95.8</b>	<b>37,849</b>	<b>0.54</b>	<b>203.2</b>
	0.32	6,333	0.67	42.3	11,908	0.52	62.2	17,656	0.52	92.7	35,897	0.55	197.2
	0.34	6,140	0.68	41.6	11,069	0.54	59.5	16,534	0.54	89.0	33,743	0.56	190.1
	0.35	6,038	0.68	41.3	10,640	0.55	58.0	15,900	0.55	86.8	32,578	0.57	186.1
	0.36	5,935	0.69	40.9	10,195	0.55	56.4	15,242	0.55	84.5	31,372	0.58	181.8
	0.38	5,718	0.70	40.1	9,285	0.57	53.1	13,963	0.57	79.8	28,965	0.60	172.9
	0.40	5,482	0.71	39.2	8,394	0.59	49.6	12,746	0.59	75.0	26,622	0.62	163.8
Fresh	0.28	7,319	0.58	42.1	39,616	0.48	189.4	90,776	0.46	418.6	137,711	0.47	650.0
	<b>0.30</b>	<b>7,078</b>	<b>0.59</b>	<b>41.4</b>	<b>37,349</b>	<b>0.49</b>	<b>182.8</b>	<b>84,489</b>	<b>0.47</b>	<b>400.3</b>	<b>128,916</b>	<b>0.48</b>	<b>624.5</b>
	0.32	6,798	0.60	40.5	34,735	0.50	174.6	77,649	0.49	379.1	119,182	0.50	594.3
	0.34	6,493	0.61	39.5	31,921	0.52	165.4	70,654	0.50	356.1	109,068	0.51	561.0
	0.35	6,337	0.62	39.0	30,493	0.53	160.5	67,114	0.51	344.0	103,943	0.52	543.5
	0.36	6,181	0.62	38.5	29,072	0.53	155.5	63,641	0.52	331.7	98,894	0.53	525.6
	0.38	5,858	0.64	37.3	26,324	0.55	145.4	56,934	0.54	307.1	89,116	0.55	489.7
	0.40	5,527	0.65	36.0	23,699	0.57	135.2	50,301	0.56	281.3	79,526	0.57	452.5
<b>Total</b>	<b>0.28</b>	<b>16,278</b>	<b>0.62</b>	<b>100.6</b>	<b>56,039</b>	<b>0.49</b>	<b>271.9</b>	<b>116,819</b>	<b>0.47</b>	<b>550.0</b>	<b>189,137</b>	<b>0.49</b>	<b>922.5</b>



Panda Hill April 2015 MIK SMU Model Resource Estimate Update

Oxidation/ Weathering	Lower Cut-off Grade	Measured Resource			Indicated Resource			Inferred Resource			Total Measured + Indicated + Inferred		
		Tonnes (kT)	Nb <sub>2</sub> O <sub>5</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> Metal (kT)	Tonnes (kT)	Nb <sub>2</sub> O <sub>5</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> Metal (kT)				Tonnes (kT)	Nb <sub>2</sub> O <sub>5</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> Metal (kT)
	<b>0.30</b>	<b>15,857</b>	<b>0.63</b>	<b>99.4</b>	<b>52,936</b>	<b>0.50</b>	<b>262.9</b>	<b>109,365</b>	<b>0.48</b>	<b>528.3</b>	<b>178,158</b>	<b>0.50</b>	<b>890.6</b>
	0.32	15,358	0.64	97.8	49,392	0.51	251.9	101,224	0.50	503.1	165,975	0.51	852.8
	0.34	14,798	0.65	96.0	45,578	0.53	239.3	92,754	0.51	475.2	153,130	0.53	810.5
	0.35	14,507	0.65	94.9	43,634	0.53	232.7	88,352	0.52	460.1	146,492	0.54	787.7
	0.36	14,212	0.66	93.9	41,677	0.54	225.8	83,986	0.53	444.7	139,876	0.55	764.4
	0.38	13,592	0.67	91.6	37,834	0.56	211.6	75,550	0.55	413.7	126,976	0.56	716.9
	0.40	12,940	0.69	89.1	34,128	0.58	197.3	67,310	0.57	381.7	114,378	0.58	668.1

**NOTES:**

- The Panda Hill project is located in south-western Tanzania, approximated 20km south-west of the town of Mbeya.
- Niobium mineralisation occurs in pyrochlore (and minor columbite) and is hosted by the Panda Hill Carbonatite Complex.
- The deposit is defined by diamond and RC drillholes on nominal 25-100m spaced drilling on NE-SW oriented grid lines. The majority of drillholes are angled at -60° to 046NE.
- Validated data from 166 drillholes has been used in the resource estimate. 87 of these are RC drillholes drilled by Cradle in 2014, 38 are diamond drillholes drilled by Cradle in 2013 and 2014, 8 are RC drillholes with diamond tails drilled by Cradle in 2014 and the remaining 33 are historic diamond drillholes. Note that 63 historic drillholes were deliberately removed from the database as they have been replaced by new drilling or are situated outside the resource area.
- An indicator-based grade shell (INDOP30) was generated using a 0.3% Nb<sub>2</sub>O<sub>5</sub> indicator threshold on all data and a (0.2) 20% probability (INDOP30 > 0.2) for use in the MIK modelling (Zonecode 100).
- Geological logging information was used to create 3D surfaces defining three zones of oxidation: mostly weathered (oxide), moderately weathered (transitional) and mostly fresh (fresh).
- Sample preparation was carried out by SGS in Mwanza, Tanzania. Samples were then sent to SGS in Johannesburg for assay by XRF Borate fusion.
- QAQC consists of the insertion of certified standards and blanks into the sampling stream. Field duplicates were collected from the RC drillholes and coarse reject duplicates were collected from the diamond drillholes. Selected samples were also sent for analysis at Genalysis Laboratory in Perth, WA, as an umpire check. No potential problems were highlighted by the QAQC results and the data is considered to be of sufficient standard for use in the Resource estimation.
- Following flagging for the mineralised zones and domains, drillhole data was composited to regular 2m downhole intervals.
- Statistical analyses were completed on the raw sample data and the 2m composite data. No top cut is used in the MIK estimation and a top cut of 3% Nb<sub>2</sub>O<sub>5</sub> was applied to the Nb<sub>2</sub>O<sub>5</sub> composites used for variography and for geostatistical estimation.
- Grade estimates were generated for panels of size 25m(X) by 25m(Y) by 5m(Z) with sub-blocks of 5m(X) by 5m(Y) by 1m(Z). The estimation method was Multiple Indicator Kriging (MIK). MIK grade estimation with change of support has been applied to produce 'recoverable' Nb<sub>2</sub>O<sub>5</sub> estimates for a range of cut-off grades targeting a Selective Mining Unit (SMU) of 6.25m x 12.5m x 5m.
- In-situ dry bulk densities were assigned on the basis of measurements collected for the 2013 and 2014 drill core using the calliper method. After statistical review of the 3,743 density measurements, average bulk density values have been applied to the block model as follows: for waste material values of 2.27t/m<sup>3</sup>, 2.54 t/m<sup>3</sup> and 2.68t/m<sup>3</sup> have been applied to oxide, moderately oxide and fresh domains respectively. For mineralised material bulk density values of 2.04t/m<sup>3</sup>, 2.54t/m<sup>3</sup> and 2.65t/m<sup>3</sup> have been applied to oxide, moderately oxidised and fresh domains respectively. The bulk density values for mineralisation incorporate a 6% void factor for oxide material and a 3% void factor for transitional and fresh material, resulting from statistical estimates of recorded voids/cavities.
- Resource classification was developed from the confidence levels of key criteria including drilling methods, geological understanding and interpretation, sampling quality, data density and location, grade estimation and quality of the estimates.

## Competent persons

The information in this document that relates to the Panda Hill data and geology is based on information provided by Mr Neil Inwood, who is a Fellow of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists. Mr Inwood is a full time employee of Verona Capital and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the “Australasian Code for Reporting of Mineral Resources and Reserves”.

The information in this document that relates to the Panda Hill Mineral Resource is based on information provided by Mr Ingvar Kirchner, who is a Fellow of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists and by Ms Ellen Maidens who is a Member of the Australian Institute of Geoscientists. Both are full time employees of Coffey Mining Ltd and have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2012 edition of the “Australasian Code for Reporting of Mineral Resources and Reserves”.

Figure 1 – Project Location and Tenure

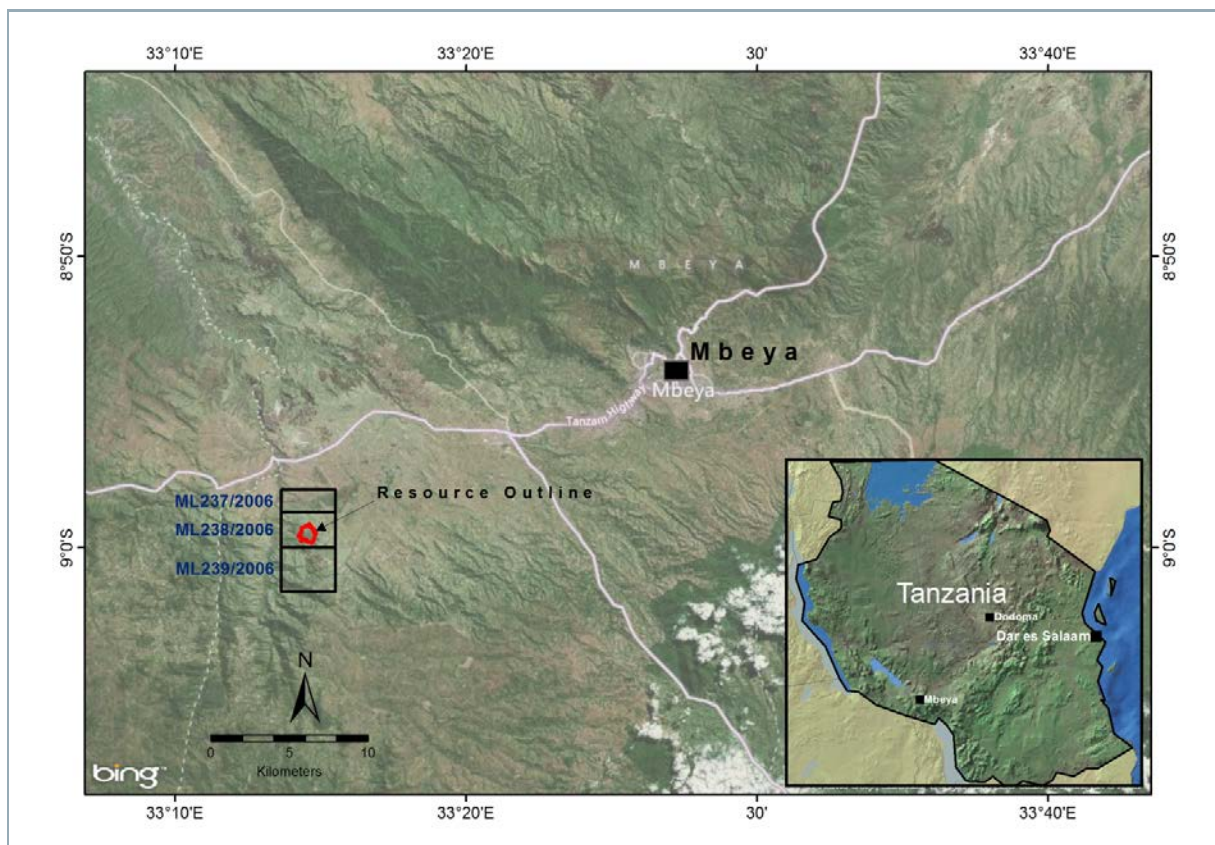


Figure 2 – Drillhole Location and Local Geology

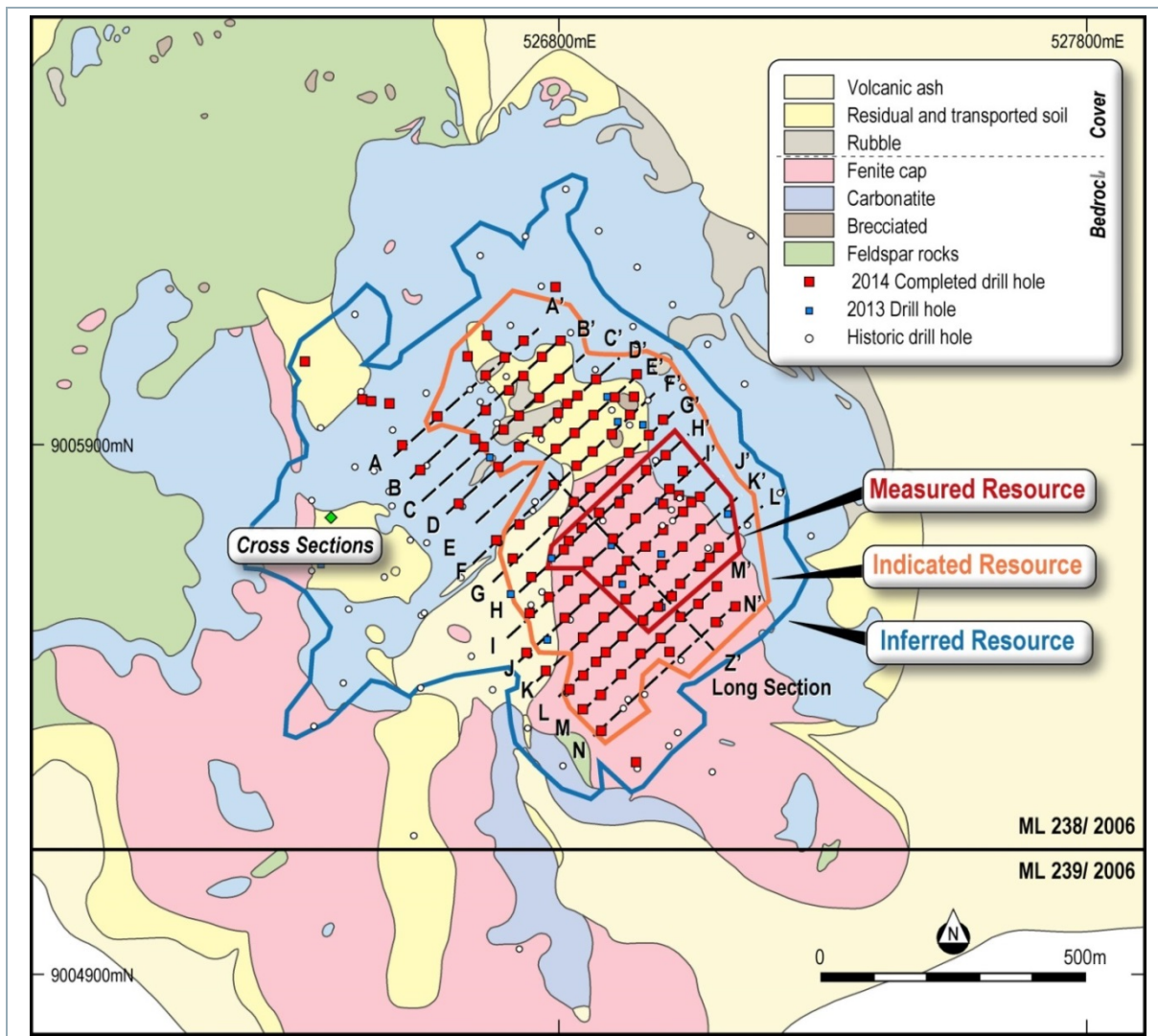




Figure 3 – Drillhole and Geology Cross Sections J-J'

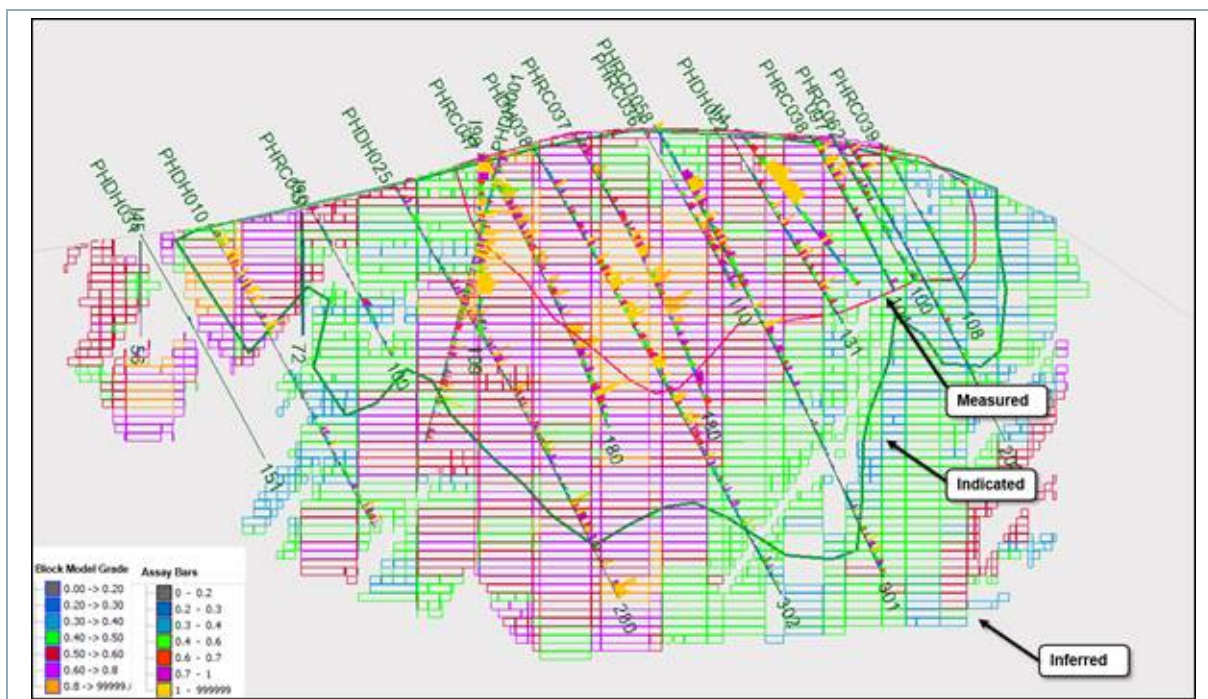


Figure 4 – Drillhole and Geology Cross Section L-L'

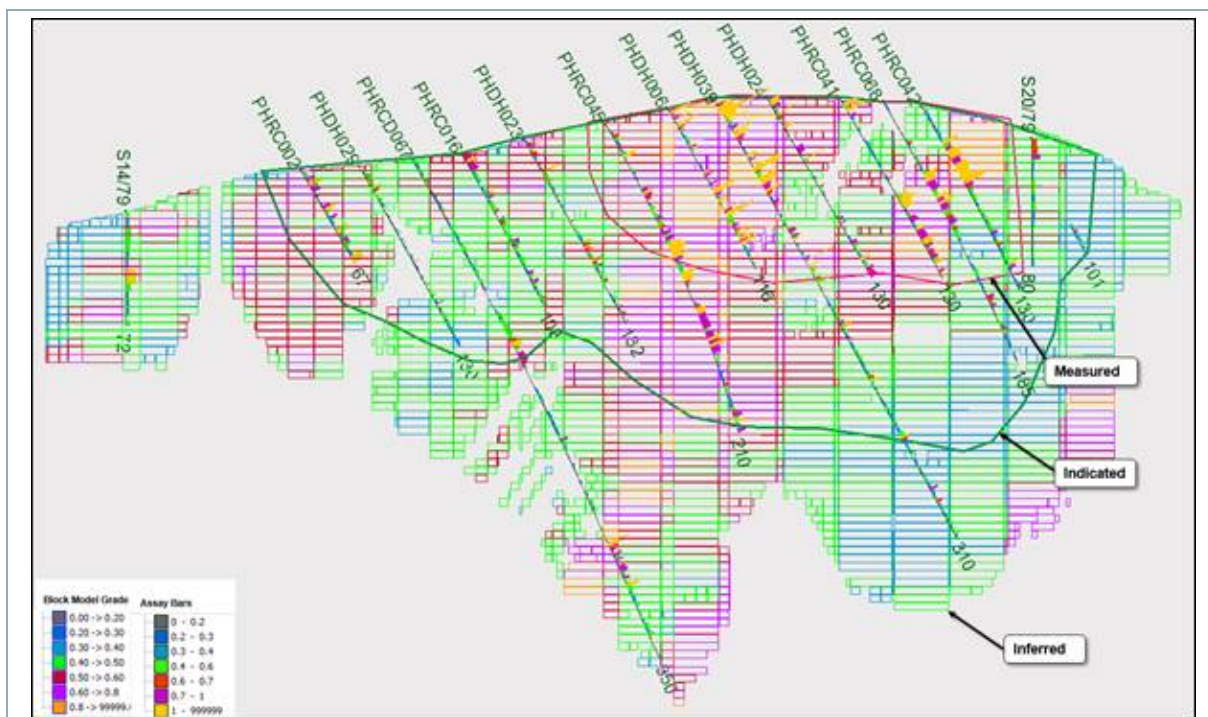




Table 2 – Drillhole collar coordinates

Hole_ID	Hole_Type	Easting (m)	Northing (m)	RL (m)	Max_Depth (m)	Dip (degrees)	Azimuth (degrees)
A2A	DDH	526555.3	9005722	1508.364	35	-90	0
A3	DDH	526488.8	9005799	1525.747	35.72	-90	0
A5	DDH	526351.1	9005948	1533.853	35.58	-90	0
BK1	DDH	526483.4	9005822	1531.108	60.04	-40	044
GS4	DDH	526658.8	9006000	1545	149.66	-45	315
GS6	DDH	526679.9	9006019	1543.645	253.29	-90	0
GSX10	DDH	526659.2	9006273	1476.272	60.96	-70	135
GSX12	DDH	527017.9	9005338	1478.003	12.192	-75	225
GSX3	DDH	526963.2	9006109	1512.504	60.96	-2	225
GSX4	DDH	527021.4	9006039	1513.4	60.96	-2	225
GSX6	DDH	527065.4	9005997	1513.369	60.96	-2	225
I29	DDH	527229.4	9005818	1476.108	52	-90	0
I32	DDH	527166.3	9006032	1478.53	50	-90	0
I35	DDH	526960.2	9006252	1456.231	31.37	-90	0
I37	DDH	526827.3	9006398	1475.1	48.59	-90	0
I47	DDH	526619.4	9005661	1483.187	56.17	-90	0
I48c	DDH	526407.1	9005736	1500.847	98.25	-90	0
I49	DDH	526476.8	9005664	1493.387	63.53	-90	0
I53	DDH	526814.9	9005299	1487	47.75	-90	0
I58	DDH	526541	9005452	1486.556	62.2	-90	0
I59	DDH	526403.5	9005597	1453.887	34.21	-90	0
I61	DDH	526396.8	9005459	1483.346	59.9	-90	0
I8	DDH	526466.6	9005527	1466.665	35.54	-90	0
I92	DDH	527032.6	9005363	1467.981	45	-90	0
II6	DDH	526635.2	9005512	1490	83.63	-90	0
J17/79	DDH	526418.9	9006160	1542.663	142	-90	0
KU2	DDH	526237.6	9005721	1464.311	74.92	-66	224
L14/79	DDH	526335.8	9005808	1498.663	100.59	-90	0
L17/79	DDH	526557	9006011	1544.19	146.19	-90	0
MS1	DDH	526452.8	9005863	1543	100.52	-90	0

Hole_ID	Hole_Type	Easting (m)	Northing (m)	RL (m)	Max_Depth (m)	Dip (degrees)	Azimuth (degrees)
O11/79	DDH	526336.6	9005381	1490.064	91.78	-50	234
O14/79	DDH	526540.6	9005590	1466.508	67.15	-90	0
PHDH001	DDH	526926.4	9005642	1539.441	182.77	-70	47
PHDH002	DDH	526909.4	9005720	1556.457	122.5	-60	46
PHDH003	DDH	526922.9	9005802	1548.275	107.4	-60	47
PHDH004	DDH	527128.9	9005776	1535.611	101.1	-60	46
PHDH005	DDH	527001.8	9005700	1553.058	84.3	-60	46
PHDH006	DDH	527000.1	9005600	1538.924	116.2	-60	46
PHDH007	DDH	527000.9	9005803	1554.303	170.9	-60	180
PHDH008	DDH	526952.3	9006003	1540.693	110.25	-60	317
PHDH009	DDH	526793.5	9005695	1516.969	125.3	-60	225
PHDH010	DDH	526785.6	9005540	1498.195	239.2	-60	47
PHDH011	DDH	526797.2	9005837	1522.149	121.75	-50	45
PHDH012	DDH	526351.1	9005681	1490.927	100	-60	45
PHDH013	DDH	526713.9	9005629	1500.593	121.15	-60	46
PHDH014	DDH	526768.9	9005937	1534.593	80	-60	46
PHDH015	DDH	526671.2	9005980	1538.937	132	-60	46
PHDH016	DDH	526773.1	9006079	1547.82	102	-60	46
PHDH017	DDH	526810.1	9006040	1544.509	110	-60	46
PHDH018	DDH	526662.7	9005907	1526.097	130	-60	46
PHDH019	DDH	526873.1	9005901	1533.662	108	-60	46
PHDH020	DDH	526944.1	9005967	1540.041	130	-60	47
PHDH021	DDH	526975.1	9005861	1546.571	130	-60	46
PHDH022	DDH	527012.5	9005749	1551.836	130.8	-60	47
PHDH023	DDH	526928.4	9005544	1519.985	132	-60	47
PHDH024	DDH	527042.8	9005645	1545.695	130.1	-60	62
PHDH025	DDH	526861.7	9005619	1522.511	280.2	-60	47
PHDH026	DDH	526887.3	9005367	1507.858	80	-60	47
PHDH027	DDH	526798.3	9005763	1516.164	130	-60	47
PHDH028	DDH	526299.7	9005713	1488.131	130	-60	47
PHDH029	DDH	526855.5	9005471	1503.104	130	-60	47

Hole_ID	Hole_Type	Easting (m)	Northing (m)	RL (m)	Max_Depth (m)	Dip (degrees)	Azimuth (degrees)
PHDH030	DDH	526625.7	9005797	1512.127	80	-60	46
PHDH031	DDH	526751.5	9005518	1492.045	151	-60	46
PHDH032	DDH	526541.7	9005862	1543.865	201	-60	46
PHDH033	DDH	526911	9006001	1541.404	200	-60	46
PHDH034	DDH	526579.1	9005964	1557.169	137.7	-60	47
PHDH037	DDH	526373.1	9005769	1508.888	130	-60	47
PHDH038	DDH	526931.4	9005674	1548.146	302.2	-60	47
PHDH039	DDH	527023.7	9005620	1542.702	309.5	-60	47
PHDH040	DDH	526888.3	9005779	1544.302	170	-60	47
PHRC001	RC	526856.8	9005403	1505.978	60	-60	47
PHRC002	RC	526830	9005445	1500.177	67	-60	47
PHRC003	RC	526787	9005480	1491.866	104	-60	47
PHRC004	RC	526927.5	9005472	1504.695	60	-60	47
PHRC006	RC	526734.6	9005758	1500.272	100	-60	47
PHRC007	RC	526758.1	9005662	1507.014	100	-60	47
PHRC008	RC	526695.7	9005734	1493.657	80	-60	47
PHRC009	RC	526754.2	9005596	1503.178	106	-60	47
PHRC010	RC	526825.4	9005585	1508.017	100	-60	47
PHRC011	RC	526787.8	9005624	1509.574	100	-60	46
PHRC012	RC	527000.1	9005804	1554.277	97	-60	47
PHRC013	RC	526925.9	9005802	1548.468	103	-60	47
PHRC014	RC	526942.7	9005826	1548.823	100	-60	47
PHRC015	RC	526869.3	9005832	1532.323	109	-60	47
PHRC016	RC	526900.9	9005518	1509.954	108	-60	47
PHRC017	RC	526952.5	9006005	1540.688	150	-60	47
PHRC018	RC	527007.7	9005963	1533.063	106	-60	47
PHRC019	RC	526956.4	9005303	1490.854	76	-60	47
PHRC020	RC	526857.5	9005546	1507.279	102	-60	47
PHRC021	RC	526822.8	9005727	1525.691	109	-60	47
PHRC022	RC	526942.3	9005894	1541.691	109	-60	47
PHRC023	RC	526741.7	9006042	1543.61	109	-60	47

Hole_ID	Hole_Type	Easting (m)	Northing (m)	RL (m)	Max_Depth (m)	Dip (degrees)	Azimuth (degrees)
PHRC024	RC	526717.9	9006015	1540.089	109	-60	47
PHRC026	RC	526842	9006009	1540.764	84	-60	0
PHRC027	RC	526805.6	9005973	1536.945	100	-60	0
PHRC028	RC	526880.5	9006038	1543.698	133	-60	0
PHRC029	RC	526737	9005910	1531.363	80	-60	47
PHRC030	RC	526650.4	9005922	1525.933	100	-60	47
PHRC031	RC	526800.5	9005905	1530.64	104	-60	47
PHRC032	RC	526797.4	9005840	1522.322	130	-60	47
PHRC033	RC	526694.2	9005867	1517.453	80	-60	47
PHRC034	RC	526844.2	9005872	1525.305	100	-60	47
PHRC035	RC	526958	9006045	1537.763	104	-60	47
PHRC036	RC	526971.5	9005718	1555.462	110	-60	47
PHRC037	RC	526938.7	9005692	1552.864	180	-60	47
PHRC038	RC	527047.6	9005783	1551.038	104	-60	47
PHRC039	RC	527080.5	9005810	1545.239	108	-60	47
PHRC040	RC	527042.5	9005713	1550.948	100	-60	47
PHRC041	RC	527078.4	9005681	1543.835	130	-60	47
PHRC042	RC	527109.2	9005719	1540.127	130	-60	47
PHRC043	RC	527071.5	9005609	1537.411	106	-60	47
PHRC044	RC	527007.8	9005549	1530.952	144	-60	47
PHRC045	RC	526971.5	9005578	1532.947	210	-60	2
PHRC046	RC	526938.1	9005622	1536.529	197	-60	47
PHRC047	RC	526910.1	9005656	1539.334	180	-60	47
PHRC048	RC	526870.3	9005694	1539.016	216	-60	47
PHRC049	RC	526878.4	9005971	1539.112	200	-60	47
PHRC050	RC	526667.1	9006045	1540.673	140	-60	47
PHRC051	RC	526701.7	9006081	1541.669	140	-60	227
PHRC056	RC	526972.3	9005649	1545.372	133	-60	47
PHRC059	RC	526954.3	9005771	1557.424	200	-60	47
PHRC062	RC	527060.3	9005802	1549.389	200	-90	47
PHRC063	RC	526824.3	9005650	1519.442	200	-90	47



Hole_ID	Hole_Type	Easting (m)	Northing (m)	RL (m)	Max_Depth (m)	Dip (degrees)	Azimuth (degrees)
PHRC064	RC	527111.6	9005642	1534.533	179	-90	32
PHRC065	RC	527042.5	9005582	1535.82	200	-60	47
PHRC066	RC	526970.5	9005512	1515.613	200	-60	227
PHRC068	RC	527097.6	9005696	1541.659	185	-60	227
PHRC069	RC	526912.3	9005862	1539.498	187	-60	207
PHRC070	RC	526819.6	9005711	1524.752	91	-60	47
PHRC071	RC	526889	9005434	1505.931	200	-60	47
PHRC072	RC	526938.6	9005820	1548.943	192	-60	47
PHRC073	RC	526913.5	9005933	1539.208	200	-60	2
PHRC074	RC	526841.9	9005935	1533.679	200	-60	47
PHRC075	RC	526841	9005801	1525.236	200	-60	47
PHRC076	RC	526855.2	9005749	1535.964	200	-60	46
PHRC077	RC	526507.4	9005917	1554.355	145	-60	47
PHRC078	RC	526821.8	9005990	1538.877	153	-60	47
PHRC079	RC	526325.7	9006074	1536.773	152	-60	47
PHRC080	RC	526702.2	9005941	1535.518	166	-60	47
PHRC081	RC	527111.7	9005581	1527.412	150	-60	47
PHRC082	RC	526979.5	9005929	1539.716	200	-60	47
PHRC083	RC	526577	9005963	1557.213	117	-60	227
PHRC084	RC	527044.5	9005860	1539.437	200	-60	47
PHRC085	RC	527009.6	9005894	1540.512	148	-60	47
PHRC086	RC	526769.9	9006000	1539.624	200	-60	47
PHRC087	RC	526809.3	9006105	1544.875	142	-60	47
PHRC088	RC	526732.5	9006113	1541.8	196	-60	32
PHRC089	RC	526635.7	9006073	1533.192	200	-60	47
PHRC090	RC	526480.8	9005993	1550.654	151	-60	227
PHRC091	RC	526445.5	9005999	1549.852	65	-60	227
PHRC092	RC	526430.8	9006004	1548.142	151	-60	207
PHRC093	RC	526677.7	9006110	1533.039	200	-60	47
PHRC094	RC	527143.9	9005600	1527.628	200	-60	47
PHRC095	RC	527017.1	9005520	1524.387	200	-60	47

Hole_ID	Hole_Type	Easting (m)	Northing (m)	RL (m)	Max_Depth (m)	Dip (degrees)	Azimuth (degrees)
PHRC096	RC	526800.6	9006211	1519.598	151	-60	2
PHRC097	RC	527035.4	9005810	1552.399	100	-60	47
PHRC098	RC	527017.1	9005825	1552.913	80	-60	47
PHRCD005	RCD	526723.9	9005694	1500.199	168.1	-60	46
PHRCD025	RCD	526734.5	9005974	1536.979	376.7	-60	47
PHRCD055	RCD	526896.7	9005586	1523.495	235.5	-60	47
PHRCD057	RCD	527004.4	9005680	1550.499	278.1	-60	47
PHRCD058	RCD	526980.2	9005725	1555.955	301.2	-60	47
PHRCD060	RCD	526913.9	9005735	1556.74	302.2	-60	47
PHRCD061	RCD	527075	9005748	1547.912	302.3	-60	47
PHRCD067	RCD	526877.3	9005490	1506.391	350.3	-60	47
S14/79	DDH	526748.3	9005372	1475	71.95	-90	0

The following extract from the JORC Code 2012 Table 1 is provided for compliance with the Code requirements for the reporting of Mineral Resources:

**Section 1 Sampling Techniques and Data** (Criteria in this section apply to all succeeding sections).

Table 3 – Extract of JORC Code 2012 Table 1

Criteria	JORC Code Explanation	Commentary	Competent Person
Sampling techniques	<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 1m samples from which 3kg was pulverised to produce a 30g 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>Sample intervals for the 2013 and 2014 drill core were based on lithological units. Care was taken not to mix different lithologies or weathering types. Sample intervals were nominally 1m length but range from 0.3m to a maximum of 1.5m in barren uniform material. Sample lengths are kept to 1m in mineralised material where possible.</li> <li>Quarter core samples were taken from the HQ and ½ core from NQ core for assaying. Competent core was cut using a diamond saw. Friable material was carefully sampled by hand.</li> <li>RC Samples are split using a cone splitter into 1m samples, then a combined 2m composite is taken using a riffle splitter. RC sample weights are approximately 2kg.</li> <li>Samples were dispatched to the SGS preparation laboratory in Mwanza, Tanzania, for crushing and pulverising to 85% passing 75µm. Pulps were then sent to SGS Johannesburg, South Africa, for niobium assay by XRF Borate Fusion.</li> <li>A calibrated hand-held Niton XRF analyser is used to aid in mineralisation identification.</li> <li>Historic core samples were sampled according to rock type. Sample intervals reportedly varied between 2m and 20m, however the assay data contains some sample intervals much larger than this. Unrealistic intervals were not included in the estimate.</li> </ul>	NAI
Drilling techniques	<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>2013 diamond drilling was conducted by Bamboo Rock drilling. 2014 diamond drilling was conducted by Capital Drilling. Drilling typically started in HQ3 core to allow for safe collaring and to capture sufficient material for metallurgical test work. When difficult drilling conditions were encountered, the HQ rods were left as casing to allow for continuation of drilling using NQ rods. HQ and NQ core is typically taken.</li> </ul>	NAI

Criteria	JORC Code Explanation	Commentary	Competent Person
		<ul style="list-style-type: none"> <li>Core orientations were done with the Reflex orientation tool.</li> <li>RC drilling is by a Schram 450 rig, typically drilling with a 5.5" diameter bit and a 900cfm compressor. No booster compressor was required for RC drilling.</li> <li>Type of rig and core size were not recorded for the majority of historic holes. One generation of historic holes (drilled by RUDIS) were drilled using a Longyear 38DC rig with NQ core sampled as quarter core and BQ core sampled as half core.</li> </ul>	
Drill sample recovery	<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>Core recovery is measured as a proportion (%) and any cavities or missing intervals are recorded.</li> <li>Recovery was generally high for all core. Up to 6% voids are reported in some regions.</li> <li>RC recovery is recorded by visual estimation of recovered sample bags and by weighing all sample rejects from the splitter. Recovery is generally good.</li> <li>Recovery is not recorded for the historic drilling data.</li> </ul>	NAI
Logging	<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>Logging of the 2013 and 2014 drillholes included recording of lithological contacts, weathering contacts, vein/dyke orientations, and the orientation of any observed flow banding. Structural measurements (alpha and beta angles) were taken. Wet and dry core photographs were taken. All Cradle core was logged.</li> <li>Geotechnical logging of the Cradle holes was completed by a geotechnical engineer. RQDs, defects, weathering, strength, infill, and jointing were recorded.</li> <li>Logging is of sufficient quality for the current studies.</li> <li>Geological logging of historic holes was qualitative, focusing on rock type and mineralogy, particularly the presence of pyrochlore and apatite, and the carbonate mineralogy. Some holes only had summary log information. Overall the historical logging is repeated by the 2013 logging. The 2013 logging contains the most detail, the RUDIS logging is generally good, and the logging of the original MBEXCO drillholes is generally of less detail than the other drill campaigns.</li> </ul>	NAI



Criteria	JORC Code Explanation	Commentary	Competent Person
Sub-sampling techniques and sample preparation	<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 sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</li> <li>Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul>	<ul style="list-style-type: none"> <li>For the 2013 and 2014 drilling, half core samples were sent to SGS Vancouver for metallurgical testing and quarter core samples were sent to SGS Johannesburg for assay after being sent to SGS Mwanza (Tanzania) for preparation.</li> <li>All sampling of the 2013 and 2014 core was carefully supervised. Ticket books were used with pre-numbered tickets placed in the sample bag and the core tray and double checked against the ticket stubs to guard against sample mix ups.</li> <li>One metre lengths of quarter HQ/NH core, as sampled by Cradle, are considered sufficient to provide an adequately representative sample for chemical assaying.</li> <li>RC samples were taken as 2m composites using a riffle splitter.</li> <li>RUDIS sampled NQ core as quarter core and BQ core as half core to ensure similar sample weights were collected. Samples were crushed on site, composited and sent to Yugoslavia for analysis in their own laboratory using a Philips XRF machine.</li> <li>Details of historic sampling from GST and MBEXCO are not known.</li> <li>Portions of the 2013 drillholes that twin sections of the historic holes show comparable Nb<sub>2</sub>O<sub>5</sub> grades.</li> </ul>	NAI
Quality of assay data and laboratory tests	<ul style="list-style-type: none"> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.</li> <li>Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.</li> </ul>	<ul style="list-style-type: none"> <li>Coffey conducted an inspection of the Johannesburg laboratory during a site visit in August 2013 and found the laboratory to be of industry standard with no problems noted.</li> <li>Matrix-matched standards are inserted every 20 samples on sample numbers ending in 0 (e.g. *00, *20, *40, etc.). Eight different standards were used. Approximately 10g of standard was used for the XRF Borate fusion analysis samples (note: borate fusion only used approximately 4g of pulp). Standards were either supplied pre-packaged or were measured into a small paper bag, and the standards were not blind. One standard appears to be biased high. However, an additional standard sourced from an independent supplier has a very similar expected value and shows no bias, suggesting there is no problem with the assay laboratory i.e. the high bias is inherent in the standard.</li> <li>Blanks were inserted at a ratio of 1:50 (i.e. samples *10, *70) and at the start of each sample batch.</li> </ul>	NAI/EM

Criteria	JORC Code Explanation	Commentary	Competent Person
		<ul style="list-style-type: none"> <li>A programme of coarse reject duplicates was undertaken for the core samples. Duplicates were taken at a rate of approximately 1 in 30.</li> <li>Field duplicates of RC samples were taken at a rate of 1 in 30.</li> <li>A selection of pulps were sent to Genalysis in Perth for umpire assaying. Full assay results are still pending at the time of writing but preliminary results do not suggest any assay problems.</li> </ul>	
Verification of sampling and assaying	<ul style="list-style-type: none"> <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>	<ul style="list-style-type: none"> <li>Coffey conducted site visits in August 2013 and September 2014, during the drilling programmes, observing all drilling procedures. All procedures were considered industry standard, well supervised and well carried out.</li> <li>Geological data is entered directly into a "Tough Book" logging laptop computer. The data is then directly downloaded to a computer where it is compiled into an Access database.</li> <li>Assay data is provided as .csv files from the laboratory and extracted through a database query directly into the assay table, eliminating the chance of data-entry errors. Spot checks are made against the laboratory certificates. Datashed is used for final assay import.</li> <li>3 RC holes have been drilled to twin the 2013 diamond drilling.</li> <li>2 RC holes with diamond tails have been drilled twinning a 2013 diamond drillhole and a 2014 RC drillhole.</li> </ul>	NA/EM
Location of data points	<ul style="list-style-type: none"> <li>Accuracy and quality of surveys used to locate drillholes (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 style="list-style-type: none"> <li>Collar positions were set out using a Handheld Garmin GPS with reported accuracy of 3m horizontal. Two pegs lined up using a Suunto compass were used to align the rig. Historic holes were drilled on the Tanzanian ARC60 grid. Cradle Resources are using the WGS84, UTM36S grid.</li> <li>Drillhole positions have been surveyed by DGPS using a local base station and survey stations and have an average relative accuracy of <math>\pm 2</math>cm.</li> <li>Downhole surveys were taken using a Reflex electronic multi shot instrument. Collar surveys were taken using a compass and inclinometer. There is the possibility of some deviation in the recorded azimuth due to the presence of magnetite in the carbonatite, however overall the surveys showed only minor deviations in azimuth and dip. There is no apparent trend to the deviations based on drilling direction.</li> </ul>	NAI

Criteria	JORC Code Explanation	Commentary	Competent Person
Data spacing and distribution	<ul style="list-style-type: none"> <li>Data spacing for reporting of Exploration Results.</li> <li>Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.</li> <li>Whether sample compositing has been applied.</li> </ul>	<ul style="list-style-type: none"> <li>The drillholes are spaced on a nominal 50m to 100m spacing; with 50m section lines. The main Angel zone has been infilled to 25m spaced drillholes on 50m sections. Step out exploration extends to 100m x 100m spacing.</li> <li>The 2014 drilling had a nominal sample length of 1m for diamond and 2m for RC.</li> <li>The data spacing is considered suitable for resource estimates.</li> </ul>	NA/EM
Orientation of data in relation to geological structure	<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 distribution of pyrochlore and hence of niobium within the carbonatite is fairly uniform for the lower grade material. Higher grade areas occur in the steeply dipping schlieren (flow banding), particularly in the magnetite rich zones. The recent drilling has been oriented with a dip of 60° with an azimuth of 045 degrees, which is considered acceptable to test the mineralisation.</li> </ul>	NA/EM
Sample security	<ul style="list-style-type: none"> <li>The measures taken to ensure sample security.</li> </ul>	<ul style="list-style-type: none"> <li>Details for sample security for the historic drillholes is not known.</li> <li>Samples from the 2013 and 2014 drilling were placed into small plastic bags with the pre-printed sample number. These bags were stapled shut in the core yard. The samples were then put into large polyweave or plastic bags with approximately 10 samples per bag. These were sealed shut using tape prior to being transported by dedicated truck to the SGS preparation laboratory in Mwanza (northern Tanzania).</li> </ul>	NAI
Audits or reviews	<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>Coffey conducted site visits during the drilling program in August 2013 and during the infill drilling programme in September 2014. The sampling techniques were reviewed and found to be of industry standard and entirely appropriate for this type of deposit.</li> </ul>	EM

## Section 2 Reporting of Exploration Results (Criteria listed in the preceding section also apply to this section).

Criteria	JORC Code Explanation	Commentary	Competent Person
<b>Mineral tenement and land tenure status</b>	<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 project area is located on three granted MLs (ML237/2006, 238/206 and 239/2006) located approximately 25km WSW of the regional capital of Mbeya, in southern Tanzania. The three MLs cover an approximate area of 22km<sup>2</sup>. Cradle Resources holds a 50% interest in all three MLs through its ownership of Panda Hill Mining Pty Ltd (PHM). RECB Ltd (a BVI Company) owns the three Panda Hill MLs, PHM owns 50% of RECB Ltd and has an option to purchase the remaining 50%. It is understood that a 3% royalty may be payable to the Tanzanian Government once mining has started. The licenses are not subject to any 3rd party agreements.</li> <li>The resource and the bulk of ML237/2006 and ML238/2006 are located within a region of designated Prison grounds. The Resource itself is removed from any existing buildings or infrastructure. As the location of the resource is located within the prison boundaries, only the prison-related community would be directly affected by any potential mining activities.</li> <li>The three granted MLs are current until 16 November 2016. Department of Prisons approval is required for any work to be conducted on ML237/2006 and ML238/2006. Cradle Resources has obtained permission to operate on these areas and is not aware of any impediment for future operations.</li> </ul>	NAI
<b>Exploration done by other parties</b>	<ul style="list-style-type: none"> <li>Acknowledgment and appraisal of exploration by other parties.</li> </ul>	<ul style="list-style-type: none"> <li>The Panda Hill Niobium project has been explored since the 1950s. The Geological Survey of Tanzania (GST) and Mbeya Exploration Company (MBEXCO) drilled 83 diamond drillholes for a total depth of 5,187m in the Panda Hill project area in the 1950's and early 1960's. Yugoslavian company RUDIS, in joint venture with the State Mining Company of Tanzania (STAMINCO), drilled 13 diamond drillholes for a total of 1,305m in the period of 1978 to 1980. These holes were drilled on 100m x 100m spaced centres on the Tanzanian ARC60 grid. Drillhole logs and assays are available for the historic drilling. Laboratory certificates have been sighted for the GST drilling and original data printouts have been obtained for the RUDIS drilling.</li> </ul>	NAI

Criteria	JORC Code Explanation	Commentary	Competent Person
<b>Geology</b>	<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 project is characterised as a carbonatite-hosted niobium deposit. The majority of the Panda Hill niobium mineralisation is found within pyrochlore and lesser columbite. The bulk of the known mineralisation is located within carbonatite lithologies, with Nb<sub>2</sub>O<sub>5</sub> grades typically ranging from 0.1% to 1%. Higher-grade niobium mineralisation is noted within flow-banding ("schlieren") within the carbonatite and within the surficial weathered cap.</li> </ul>	NAI
<b>Drillhole 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 drillholes: <ul style="list-style-type: none"> <li>easting and northing of the drillhole collar</li> <li>elevation or RL (Reduced Level – elevation above sea level in metres) of the drillhole 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>Drillhole coordinates and orientations are provided in Table 2 of this report.</li> <li>This statement relates to an (updated) Mineral Resource. Exploration results have been announced by Cradle Resources previously.</li> <li>65 of the historic drillholes have been removed from the drilling database. 38 of these are replaced by new drilling, 8 are adjacent to other better informed historic holes, and the remainder are either outside the resource area or too far from other holes to allow interpretation and estimation in that area, and/or have insufficient assay data or data quality to be able to be used.</li> <li>Three RC drillholes drilled by Cradle were removed from the resource database as they lie north of the resource area. Two diamond drillholes drilled by Cradle were not included in the resource database in the resource as they were used as geotechnical drillholes.</li> </ul>	NA/EM
<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>This statement relates to a Mineral Resource. Exploration results have been announced by Cradle Resources previously.</li> </ul>	

Criteria	JORC Code Explanation	Commentary	Competent Person
<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 drillhole 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>This statement relates to a Mineral Resource. Exploration results have been announced by Cradle Resources previously.</li> </ul>	
<b>Diagrams</b>	<ul style="list-style-type: none"> <li>Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported. These should include, but not be limited to a plan view of drillhole collar locations and appropriate sectional views.</li> </ul>	<ul style="list-style-type: none"> <li>A drillhole plan and accompanying cross-sections are provided in Figures 2 to 4 of this report.</li> </ul>	NA/EM
<b>Balanced reporting</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>This statement relates to a Mineral Resource. Exploration results have been announced by Cradle Resources previously.</li> </ul>	
<b>Other substantive exploration data</b>	<ul style="list-style-type: none"> <li>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.</li> </ul>	<ul style="list-style-type: none"> <li>Detailed geological mapping has been conducted by the Tanganyika Geological Survey in the 1950s and RUDIS in the 1980s. Two papers detailing the geology of the Panda Hill carbonatite were subsequently published in Economic Geology.</li> <li>Cradle conducted geological mapping at the same time as the drilling program. Both the recent and historic mapping provides information relating to the orientation of the flow banding within the carbonatite.</li> <li>Metallurgical test work has been conducted by MBEXCO and RUDIS in the past. MBEXCO also conducted trial mining. Cradle has undertaken metallurgical test work on the mineralized carbonatite material. At the time of writing the results are not available, however there is no reason to suspect they will be materially different from the historic test work results.</li> </ul>	NAI
<b>Further work</b>	<ul style="list-style-type: none"> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions,</li> </ul>	<ul style="list-style-type: none"> <li>Four high priority target regions have been identified (see announcement 23 February 2015). And these will be the focus of future planned drilling with an aim to define further high grade mineralisation</li> </ul>	NAI

Criteria	JORC Code Explanation	Commentary	Competent Person
	including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.		



**Section 3 Estimation and Reporting of Mineral Resources** (Criteria listed in section 1, and where relevant in section 2, also apply to this section).

Criteria	JORC Code Explanation	Commentary	Competent Person
Database integrity	<ul style="list-style-type: none"> <li>Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes.</li> <li>Data validation procedures used.</li> </ul>	<ul style="list-style-type: none"> <li>The 2013 and 2014 data collection was directly into logging tablets. Entry of 2013 assay data into the database was through direct extraction via an Access query from the laboratory files. In 2014 the database was migrated through to a Datasheet relational database. Final assay importation of the.csv files provided by the assay laboratory has been into Datasheet, eliminating the potential for data entry errors. Spot checks have been conducted on all aspects of the data by Cradle.</li> <li>Coffey has conducted its own validation process on the data, with checks looking for missing/overlapping intervals, missing data and extreme values. Coffey has also carried out spot checks on the assay data against the laboratory certificates.</li> <li>Historic data was compiled by the Canadian National Geo. Expl. Ltd. (CINGEX) in 1972-1973. Neil Inwood of Verona Capital has validated this data compilation against original laboratory assay sheets for the GST and MBEXCO drilling, and found only 1 data transposition. The compilation was also validated against an original computer printout of the RUDIS database, and found to be fully in accordance. No original geological logs were found for validation.</li> </ul>	NA/EM
Site visits	<ul style="list-style-type: none"> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul style="list-style-type: none"> <li>Neil Inwood supervised the Cradle Resources 2013 and 2014 drilling programmes on site.</li> <li>Ellen Maidens conducted site visits during the August 2013 drilling programme and the September 2014 drilling programme. All drilling, logging and sampling procedures were observed and found to be of industry standard with no problems highlighted. Ellen Maidens also conducted a site visit of the SGS Johannesburg assay laboratory with Keith Bowes of Cradle Resources during the 2013 visit. The laboratory was found to be of industry standard with no material problems noted.</li> </ul>	NA/EM
Geological interpretation	<ul style="list-style-type: none"> <li>Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit.</li> <li>Nature of the data used and of any assumptions made.</li> <li>The effect, if any, of alternative interpretations on Mineral Resource estimation.</li> </ul>	<ul style="list-style-type: none"> <li>The understanding of the orientation of the flow-banding from mapping and recent drilling has been used to support the orientations seen in the Variography and used in the Resource estimate.</li> <li>It is apparent that over the extent of the Resource area, there are areas of different orientations. It is planned to use further mapping and drilling</li> </ul>	NAI

Criteria	JORC Code Explanation	Commentary	Competent Person																								
	<ul style="list-style-type: none"> <li>The use of geology in guiding and controlling Mineral Resource estimation.</li> <li>The factors affecting continuity both of grade and geology.</li> </ul>	to delineate these area into discrete domains.																									
Dimensions	<ul style="list-style-type: none"> <li>The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.</li> </ul>	<ul style="list-style-type: none"> <li>The block model dimensions are given below : <table border="1"> <thead> <tr> <th></th><th>Easting (X)</th><th>Northing (Y)</th><th>RL (Z)</th></tr> </thead> <tbody> <tr> <td>Model Origin</td><td>526,000</td><td>9,004,800</td><td>1,150</td></tr> <tr> <td>Model Extent (m)</td><td>1,400</td><td>1,800</td><td>500</td></tr> <tr> <td>Parent Cell dimension (m)</td><td>25</td><td>25</td><td>5</td></tr> <tr> <td>Minimum Sub-cell dimension (m)</td><td>5</td><td>5</td><td>1</td></tr> <tr> <td>Number of Parent Cells</td><td>56</td><td>72</td><td>110</td></tr> </tbody> </table> </li> <li>Note that due to drillhole depths, mineralisation is only modelled to a maximum vertical extent of approximately 410m below surface. Mineralisation occurs from surface.</li> </ul>		Easting (X)	Northing (Y)	RL (Z)	Model Origin	526,000	9,004,800	1,150	Model Extent (m)	1,400	1,800	500	Parent Cell dimension (m)	25	25	5	Minimum Sub-cell dimension (m)	5	5	1	Number of Parent Cells	56	72	110	IK
	Easting (X)	Northing (Y)	RL (Z)																								
Model Origin	526,000	9,004,800	1,150																								
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Minimum Sub-cell dimension (m)	5	5	1																								
Number of Parent Cells	56	72	110																								
Estimation and modelling techniques	<ul style="list-style-type: none"> <li>The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.</li> <li>The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.</li> <li>The assumptions made regarding recovery of by-products.</li> <li>Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).</li> <li>In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed.</li> </ul>	<ul style="list-style-type: none"> <li>Multiple Indicator Kriging (MIK) with change of support for a final SMU model is considered a robust method for the style of mineralisation and intended purpose of the model (for PFS use). An indicator based grade shell (INDOP30) was generated using a 0.3% Nb<sub>2</sub>O<sub>5</sub> indicator threshold on all data and a (0.2) 20% Probability (INDOP30 &gt; 0.2) for use in the MIK modelling (Zonecode 100). The estimation was carried out using the Datamine mining software package.</li> <li>No top cut is used in the MIK estimation process, and a top cut of 3% Nb<sub>2</sub>O<sub>5</sub> was applied to the Nb<sub>2</sub>O<sub>5</sub> composites used for variography and geostatistical validation. This was based on analysis of the Nb<sub>2</sub>O<sub>5</sub> population distribution.</li> <li>MIK grade estimation with change of support has been applied to produce 'recoverable' Nb<sub>2</sub>O<sub>5</sub> estimates targeting a Selective Mining Unit (SMU) of 6.25m x 12.5m x 5m.</li> <li>Search ellipses were oriented dipping to the SW based on variography and geology. Estimation was generally conducted in a 2 pass strategy with the second estimate completed with expanded sample searches and</li> </ul>	IK																								

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	<ul style="list-style-type: none"> <li>Any assumptions behind modelling of selective mining units.</li> <li>Any assumptions about correlation between variables.</li> <li>Description of how the geological interpretation was used to control the resource estimates.</li> <li>Discussion of basis for using or not using grade cutting or capping.</li> <li>The process of validation, the checking process used, the comparison of model data to drillhole data, and use of reconciliation data if available.</li> </ul>	<p>relaxed composite collection criteria.</p> <ul style="list-style-type: none"> <li>Validation was by visual and statistical comparison of the estimation with the input data. The previous 2014 resource estimate is available for comparison.</li> <li>The new drilling has increased the confidence in the geology and grade continuity, resulting in the conversion of a large part of the Resource to Indicated category and allowing for the conversion of a portion of the Resource to Measured category. Deeper drilling and removal of waste by the indicator based grade shell has resulted in an overall increase in tonnage and metal content for the project.</li> <li>There is no mining at Panda Hill to date.</li> <li>No assumptions are made regarding recovery of by-products.</li> <li>Additional elements (Fe<sub>2</sub>O<sub>3</sub>, SiO<sub>2</sub>, CaO, Ta and TiO<sub>2</sub>) were estimated by Ordinary Kriging (OK).</li> <li>Probability Kriging was conducted for lithology (fenites) and the oxidation/weathering variables.</li> <li>The panel size of 25mx25mx5m is appropriate to the sample spacing and style of mineralisation.</li> </ul>	
Moisture	<ul style="list-style-type: none"> <li>Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.</li> </ul>	<ul style="list-style-type: none"> <li>Tonnages are based on in-situ dry bulk density measurements.</li> </ul>	IK
Cut-off parameters	<ul style="list-style-type: none"> <li>The basis of the adopted cut-off grade(s) or quality parameters applied.</li> </ul>	<ul style="list-style-type: none"> <li>A nominal reporting grade of 0.3% Nb<sub>2</sub>O<sub>5</sub> has been chosen to reflect a potentially economic mining cut off. Further work is required to define this cut-off.</li> </ul>	IK/NAI
Mining factors or assumptions	<ul style="list-style-type: none"> <li>Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining</li> </ul>	<ul style="list-style-type: none"> <li>Based on the studies completed, there is sufficient data to support the design of a typical moderate scale open cut mine to economically extract the contained resource and reasonable prospects for eventual economic extraction.</li> <li>The SMU dimension of 6.25m x 12.5m x 5m assumes a moderate level of mining selectivity if required.</li> <li>The assumption is that there is existing, steady demand and price for the niobium product.</li> </ul>	IK/NAI

Criteria	JORC Code Explanation	Commentary	Competent Person
	assumptions made.		
Metallurgical factors or assumptions	<ul style="list-style-type: none"> <li>The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.</li> </ul>	<ul style="list-style-type: none"> <li>Ferro-niobium has been economically produced from carbonatite ores for many years. In 2002, preliminary test work undertaken on the Panda Hill fresh carbonatite by SGS Lakefield reported an Nb<sub>2</sub>O<sub>5</sub> recovery of 69% at 56% grade. Published recovery<sup>1</sup> for a similar carbonatite ore body currently in production in Malawi is 58% Nb<sub>2</sub>O<sub>5</sub>. Both the producing plant and the test work share a similar flow sheet consisting of reverse gangue flotation followed by direct niobium mineral flotation. Recent test work has commenced, also using SGS Lakefield, to test the main material types observed on the deposit in the 2013 drill program including investigating flow sheet options for the weathered material. It is reasonable to assume that some portion of the weathered material can be recovered economically.                             <ul style="list-style-type: none"> <li><sup>1</sup> "The Production of Ferro-niobium at the Niobec Mine" by Claude Dufrense and Ghislain Goyette; <a href="http://www.globemetalsandmining.com.au/Files/Investors/Presentations/2009/20090518_Investor-Presentation-May-2009.aspx">http://www.globemetalsandmining.com.au/Files/Investors/Presentations/2009/20090518_Investor-Presentation-May-2009.aspx</a>.</li> </ul> </li> </ul>	NAI
Environmental factors or assumptions	<ul style="list-style-type: none"> <li>Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.</li> </ul>	<ul style="list-style-type: none"> <li>No detailed assumption regarding possible waste and process residue disposal options or environmental surveys have been made at this early stage of the project.</li> </ul>	NAI

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Bulk density	<ul style="list-style-type: none"><li>Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples.</li><li>The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit.</li><li>Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.</li></ul>	<ul style="list-style-type: none"><li>A total of 2,793 density measurements have been taken from Cradle core. The majority of these have been determined using the calliper method. In 2013, density measurements were also determined using the Archimedes method. A statistical comparison revealed negligible difference between the methods.</li><li>After statistical review of the density data, average bulk density values have been assigned to the block model as follows:<table><tr><th>Oxidation state</th><th>Mineralised Zone</th><th>Waste</th></tr><tr><td>Oxidised</td><td>2.04t/m<sup>3</sup></td><td>2.27t/m<sup>3</sup></td></tr><tr><td>Moderately oxidised</td><td>2.54t/m<sup>3</sup></td><td>2.54t/m<sup>3</sup></td></tr><tr><td>Fresh</td><td>2.65t/m<sup>3</sup></td><td>2.68t/m<sup>3</sup></td></tr></table></li><li>The bulk density values for material within the mineralisation envelope incorporate a 6% void factor for oxide material, and a 3% void factor for transitional and fresh material resulting from statistical estimates of voids/cavities recorded during drilling.</li><li>The bulk density values are slightly lower than those used in the December 2014 Resource estimate.</li></ul>	Oxidation state	Mineralised Zone	Waste	Oxidised	2.04t/m <sup>3</sup>	2.27t/m <sup>3</sup>	Moderately oxidised	2.54t/m <sup>3</sup>	2.54t/m <sup>3</sup>	Fresh	2.65t/m <sup>3</sup>	2.68t/m <sup>3</sup>	IK
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Classification	<ul style="list-style-type: none"><li>The basis for the classification of the Mineral Resources into varying confidence categories.</li><li>Whether appropriate account has been taken of all relevant factors (ie relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data).</li><li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li></ul>	<ul style="list-style-type: none"><li>Resource classification was developed from the confidence levels of key criteria including drilling methods, geological understanding and interpretation, sampling quality, data density and location, grade estimation and quality of the estimates, as well as the various and more subjective considerations discussed in this table.</li></ul>	IK												
Audits or reviews	<ul style="list-style-type: none"><li>The results of any audits or reviews of Mineral Resource estimates.</li></ul>	<ul style="list-style-type: none"><li>The 2012 Resource estimate for Panda Hill, completed by Coffey, was reviewed in an Independent Geologist's Report by Ravensgate Mining Industry Consultants and found to be appropriate though conservative.</li></ul>	EM												
Discussion of relative accuracy/	<ul style="list-style-type: none"><li>Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the</li></ul>	<ul style="list-style-type: none"><li>The grade estimate is based on the assumption that small to medium scale open cut mining methods will be applied.</li><li>The Resource is a recoverable model assuming a 6.25m x 12.5m x 5m</li></ul>	IK												

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confidence	<p>Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate.</p> <ul style="list-style-type: none"> <li>▪ The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>▪ These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<p>SMU.</p> <ul style="list-style-type: none"> <li>▪ The MIK SMU estimation process is deemed appropriate for use in this style of deposit.</li> <li>▪ Factors affecting the confidence and relative accuracy of the Resource are primarily: <ul style="list-style-type: none"> <li>○ Incorporation of the historic drillhole data. This data is gradually being phased out and superseded by current drilling.</li> <li>○ Increased drilling density might vary model results in localised areas.</li> <li>○ Accuracy of averaged bulk density data and associated void factors. There has been a substantial amount of data collected by Cradle Resources. Mineralisation and lithology may prove to be more variable than the current scale of drilling suggest.</li> <li>○ The variance adjustment factor applied for the SMU model may vary in future estimates according to the amount of data available within the domains being modelled.</li> <li>○ Geology and domains are possibly more complex than assumed by the current resource model, particularly with respect to strike and dip of mineralisation and possible multiple potential orientations related to the complex geometry of the intrusives.</li> <li>○ Fenite lithology definition may vary with available data, and is significant for metallurgical processing.</li> <li>○ Cut-off grades may vary in future according to mining studies.</li> </ul> </li> </ul>	