CRADLE RESOURCES LIMITED

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PILOT TEST WORK TRIGGERS FINAL TRANCHE OF TREMONT FINANCING

Highlights

- Tremont has paid the final tranche of US\$5 million
- Integrated pilot plant testing confirms flotation process
- On-going integrated pilot plant testing during November to optimise design
- Concentrate from process to be converted to ferroniobium

Cradle's Managing Director, Grant Davey, commented: "Tremont's investment in Panda Hill follows positive results from our initial pilot plant program and demonstrates its ongoing confidence in this world class niobium project. This financing is expected to be used to acquire 100% of the mining licences as well as to cover detailed design and other pre-production costs for the Project. The integrated pilot plant results have shown that niobium can be recovered from the Panda Hill ore successfully. The remaining part of the piloting program will continue on optimising grades and recoveries of the final concentrate so as to be in line with the benchscale results for the different ore types. Small tweaks in the comminution and flotation circuits should ensure optimal niobium grade and recoveries in the final concentrate. Meanwhile the design engineers will continue on the detailed design of the process plant. Having significantly de-risked the Mineral Resource and the metallurgy over the last 2 years, Panda Hill is a step closer to the production of niobium in Tanzania."

Cradle Resources Limited ("Cradle") is pleased to announce that Tremont Investments Limited ("Tremont") has exercised its right to acquire a further 12.5% of the Panda Hill Niobium Project ("Project") for a further US\$5 million (AU\$7.15M) investment (taking Tremont to 50% in total). Tremont has now completed its investment of US\$20 million in four separate tranches of US\$5 million each. This investment has been used to de-risk the Project through an in-fill and extensional drilling program, extensive metallurgical work, a Preliminary Feasibility Study ("PFS") and a Definitive Feasibility Study ("DFS") which will be complete in first quarter 2016.

The final tranche of US\$5 million will be used to acquire 100% of the mining licences from RECB and complete the pilot plant test work and the DFS (which is expected to be completed in early 2016), after which a decision to mine will be made. The DFS is progressing with the 70 tonne metallurgical pilot test at SGS Lakefield in Canada, due for completion later this year. The engineering and environmental teams have completed their field work and the initial design phase of the DFS is underway. Further to this, Tremont, who is experienced with African resource project financing, is coordinating both the offtake negotiations and the project financing process.

Tremont is an African focused mining platform backed by Denham Capital, a leading energy and resources global private equity firm. Pangea Exploration, advisors to Tremont, is based in South Africa and led by Mr Rob Still. Over the last 25 years Pangea's team of technical and commercial experts has developed in excess of 16 projects in Southern and Eastern Africa at various stages of project de-risking and in a variety of commodities.

In November 2011, Tremont raised US\$200 million from Denham Capital to establish an African mining platform to target opportunities in Africa. Denham has over US\$7.9 billion of invested and committed capital in the metals and mining, oil and gas, and power sectors.

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Integrated Flotation Pilot Plant

The initial integrated pilot plant test has confirmed that successful flotation on the Panda Hill carbonatites is achievable. The pilot plant work has been undertaken at SGS, Lakefield in Canada and was based on the configuration and design defined from the result of the mini-pilot plant carried out in July 2015.



Figure 1: Basic Flowsheet for Panda Hill Niobium Project

The basic flowsheet for the process is shown in Figure 1 above and the pilot plant set-up consisted of the following:

- Bulk crushing of the sample with collection and blending of the crushed ore
- Continuous two-stage milling with desliming (Primary deslime)
- Pyrite flotation and magnetic separation
- Further desliming (Secondary deslime)
- Niobium rougher flotation
- Niobium cleaner flotation
- Concentrate collection

Future planned activities to complete the process verification include:

- Continuous leaching test work on concentrate November 2015
- Batch ferroniobium production January 2016

The feed to the pilot plant for the initial campaign consisted of approximately 30 tonnes of fresh carbonatite that represent a blend of fresh and weakly oxidised carbonatites with magnetite carbonatites. The plant was operated over a period of three weeks during which 13 separate runs were performed. The feed rate to the plant was set at 250kg/hour and achieved the targeted final concentrate production rate of ~1.5kg/hour.

During the first few days the focus was on stabilising the milling circuit and ensuring a steady mill product for the rest of the circuit. Significant effort was applied to setting up and controlling the desliming circuits and a number of scenarios were run with the aim of optimising the slimes present in the feed, but minimising niobium losses to the slimes tails. Final concentrate grades were achieved when the correct pH profile was maintained across the cleaner circuit.





Figure 2: Integrated Pilot Plant Two-Stage Milling Circuit



Figure 3: Integrated Pilot Plant Desliming and Magnetic Separation

The front-end parts of the circuit (milling, desliming, pyrite flotation and magnetic separation) are shown in Figures 2 and 3 above. The key metallurgical results for this part of the circuit for the final run (PP Run 13) are summarised in Table 1 below, along with the benchscale locked cycle test results that were done on the same sample. Successful piloting is considered to be achieved when the pilot plant results are in line with the locked cycle benchscale test results.



	Pilot Plant Bulk Sample								
	Benchscale			Pilot Plant Run 13					
	Mass %	%Nb₂O₅	Nb Deportment %	Mass %	%Nb ₂ O ₅	Nb Deportment %			
Head Sample	100%	0.51%	100%	100%	0.51%	100%			
Primary Deslime	20.0%	0.39%	16.4%	27.0%	0.39%	22.2%			
Secondary Deslime	5.1%	0.47%	5.1%	2.1%	0.53%	2.2%			
Pyrite Concentrate	1.1%	0.11%	0.3%	0.7%	0.38%	0.5%			
Magnetic Concentrate	0.4%	0.22%	0.2%	0.2%	0.11%	0.1%			
Nb Recovery to Rougher Feed		78.09	%	75.1%					

Table 1: Pilot Plant Milling & Desliming Circuit Results

Based on these results and the earlier optimisation work performed on niobium losses in the desliming circuit, a number of opportunities have been identified that should reduce niobium losses.

These include:

- Improvements in the pilot milling circuit to reduce the fines generated in the mills (this excessive fines generation is in part due to the nature of the small pilot mills). Ensuring the optimal sized product from the crusher to the milling circuit will also help reduce fines.
- Improved efficiency in the desliming units by targeting a lower particle size in the reject stream through adjusting cyclone set points and improving underflow densities to minimise short circuiting of the finer fraction particles.
- The opportunity to selectively reject fine calcite particles through a separate flotation step after primary desliming is also being considered.



Figure 4: Integrated Pilot Plant Niobium Rougher and Cleaner Flotation Cells

The niobium flotation circuit (roughers and 5 stages of cleaners) are shown in Figure 4 above. The key metallurgical results for this part of the circuit for the final run (PP Run 13) are summarised in Table 2 below, along with the benchscale locked cycle test results that were done on the same sample.



	Pilot Plant Bulk Sample									
		Benchscale		Pilot Plant Run 13						
	Mass %	%Nb ₂ O ₅	Nb %	Mass %	%Nb ₂ O ₅	Nb %				
Rougher Tails	53.7%	0.08%	8.4%	45.9%	0.12%	10.4%				
Rougher Concentrate	19.6%	1.7%	69.6%	23.8%	1.4%	64.7%				
Cleaner Tails	19.0%	0.35%	13.9%	22.6%	0.32%	15.0%				
Nb Recovery in Cleaner Circuit (%)		80.1%		77.6%						

Table 2: Pilot Plant Flotation Circuit Results

The niobium recovery in the flotation cleaner circuit was 78%, 2% lower than that of the laboratory test work for the same sample. The main reason for this was the niobium losses to rougher tails (10% versus 8% in the laboratory). The final cleaner concentrate reached 32% by the end of the run for this sample and was further upgraded in the laboratory with additional magnetic separation to 43%.

Opportunities identified to improve overall recoveries in the flotation circuit include:

- Improved control of the rougher concentrate grades by optimising tank residence time and reagent additions
- Optimising the cleaner circuit by staged addition of reagents and inclusion of gangue depressants
- Managing water quality and recycle streams by dewatering and water balance design

A second phase of piloting incorporating these changes to ensure we optimise the grade and recoveries of niobium is planned for November 2015. The timing of these runs is being dictated by the transportation and logistics around the collection and delivery of the final bulk sample.

Concentrate Leaching Continuous Test Work

The development work for this process has been completed and the optimal conditions have been identified. It has conclusively been shown that concentrates grading around 40% Nb₂O₅ (with SiO₂ and CaO as the main impurities) can easily be upgraded to greater than 50% Nb₂O₅, which is optimal for our converter process.

The niobium concentrate produced from the campaign has been collected and is now being prepared for use as the feedstock to a continuous leaching test over a period of 5 days that will be run in November/December 2015. Approximately 100kg of concentrate will be treated in the program. The circuit consists of a continuous acid leach stage, solid/liquid separation followed by caustic leaching, dilution and a final stage of solid/liquid separation to produce a concentrate that can be fed directly to the ferroniobium process.

Ferroniobium Production

As a final part of the metallurgical test work, samples of the "clean" concentrate will be converted into ferroniobium prills using a laboratory scale version of the aluminothermic process. This test work will be carried out by ANSTO (Australian Nuclear Scientific & Technology Organisation) Laboratories in Sydney, Australia during December 2015 and January 2016. ANSTO has previously carried out this work for other niobium producers and has the necessary equipment and procedures to undertake this work.

Project Background

An update to the PFS results was announced on 14 July 2015, indicating that a staged approach to the Project allowed reduced upfront capital without significantly impacting the overall economics. The indicative Project capex was US\$123 million initial capital with US\$32 million working capital based upon mining scenario of 1.3Mtpa for the first few years ramping up to 2.6Mtpa in Year 5.

Subsequent to the PFS announcement, Cradle also announced a significant Mineral Resource upgrade for the Project in April 2015, with a total Mineral Resource of 178Mt @ 0.5% Nb₂O₅ for 891Kt of contained Nb₂O₅ (16Mt @ 0.63% Nb₂O₅ Measured, 53Mt @ 0.5% Nb₂O₅ Indicated and 108Mt at 0.48% Nb₂O₅ Inferred (see announcement of 30 April



2015). Additionally the Project has an Exploration Target^{*} of 200Mt to 400Mt at between 0.4% and 0.6% Nb_2O_5 for regions outside of the current Mineral Resource (see announcement 23 April 2015). The April 2015 updated Mineral Resource will be used for the final DFS.

The Project (Figure 5 below) is located in the Mbeya region in south western Tanzania approximately 650km west of the capital Dar es Salaam. The industrial city of Mbeya (pop. 280,000) is situated only 26km from the project area and will be a significant service and logistics centre for the Project. The Project is unique in that it is located close to highly developed surrounding infrastructure including the new Songwe international airport (8 km away), the TAZARA Rail line (2km away), the Dar es Salaam - Tunduma Highway (5km away) and major power infrastructure (26km away).



Figure 5: Showing location of Panda Hill and the nearby Songwe international airport

The Project is located on three Mining Licences (ML237/2006, 238/2006 and 239/2006) granted to Panda Hill Mines Ltd on 16 November 2006 and covering a total area of approximately 22.1 km². Title of these licences was transferred to RECB Limited ("RECB") on 18 December 2012. Panda Hill Mining Pty Ltd ("PHM"), a wholly owned subsidiary of Cradle, currently has a 50% shareholding in RECB with an additional exclusive right to acquire the remaining 50% of RECB by June 2017.

*Note on Exploration Target

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. Work activities including mapping, chip sampling and drilling are expected to be undertaken in 2015 and 2016.

By order of the Board



Competent Person's Statement

The information in this document that relates to the Exploration Target, Exploration Results and Resources is based on information compiled or reviewed 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 Pty Ltd. Mr Inwood has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Inwood consents to the inclusion in this document of the matters based on his information in the form and context in which it appears.

The Company notes that JORC Table 1 has not been included in this announcement as the Table 1 from the previous announcements is valid and the sampling and assaying techniques have not changed materially from previous announcements.

The information relating to the Mineral Resource is extracted from the report entitled 'Significant Resource Upgrade for Panda Hill Niobium Project' created on 20th January 2015 and is available to view on www.cradleresources.com.au. The information relating to the Pre-Feasibility Study is extracted from the report entitled 'Positive Pre-Feasibility Study results For Panda Hill' created on 31st March 2015 and the update announcement on 14th July 2015 entitled 'Updated Panda Hill Site and Study Progress' and is available to view on www.cradleresources.com.au. The information referring to the Exploration Target is extracted from the report 'Panda Hill Progress Update and Exploration Target' created on 23rd April 2015 and is available to view on www.cradleresources.com.au. Other than as specified in this announcement and the mentioned announcements, the Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and, in the case of estimates of Mineral Resources, Exploration Target or Ore Reserves that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. 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 announcements.

For further information, please visit <u>www.cradleresources.com.au</u> or contact:

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