4 February 2015

ASX Release **ASX Code: CXX**

MORE POSITIVE METALLURGICAL RESULTS

Highlights

- **6 additional locked cycle tests on blended materials confirm our expected strong niobium recoveries**
- **A simple post flotation leach process ensures a feed suited for clean ferroniobium production that will meet customer specifications**
- **The same circuit configuration can be used for all carbonatite material types**
- **Significant reduction in reagent rates achieved with minimal impact of flotation performance**

Cradle Resources Limited (**"Cradle"**) (ASX: CXX) is pleased to announce that the second phase of the flotation test work program being carried out as part of the Pre-feasibility Study at SGS Canada has been completed.

While the first phase program focused on testing each of the major material types identified in the deposit through a variety of different flotation processes, the second phase work focused on optimising the selected flowsheet identified in the first phase, i.e. the direct flotation process. This work focused on:

1. Reagent addition reduction;
2. Simplification of the flotation reagent suite; and
3. Concentrate quality, specifically silicate rejection.

56 open circuit batch flotation tests and 6 locked cycle tests were completed as part of this second program. In this phase the eight samples representative of the major material types in the deposit were blended together in specific proportions to generate samples typical of the carbonatite zones defined within the deposit, i.e. the fresh/lightly oxidised material zone, the transition/moderately oxidised zone and the weathered/strongly oxidised zone.

The test work demonstrated that the same circuit configuration could be successfully used for all three sample types, and that only minor changes to the reagent addition rates were required to achieve the results. Furthermore success was made with reducing key reagent addition rates by over 25 percent with limited impact on float performance. These reagent reductions will have a positive impact on operating costs.

The results from a range of the locked cycle tests (LCT) covering the various material types are shown in the Table 1 below. The results again confirmed results seen in previous work where recoveries between 50% and 70% were achieved for materials of varying levels of oxidation.

Cradle Resources Limited

Level 7
1008 Hay Street
Perth WA 6000

T +61 8 9389 2000
F +61 8 9389 2099
E admin@cradleresources.com.au

Table 1: Locked Cycle Test Results

Test No.	Zone Represented	Flotation Circuit Product	Conc Grade % Nb_2O_5	% Recovery Nb_2O_5
Fresh Sovite LCT6-CompE	Primary / Fresh Zone	Nb_2O_5 Final Concentrate	54.2	70.7
Fresh Carbonatite LCT2-CompB	Primary / Fresh Zone	Nb_2O_5 Final Concentrate	43.6	65.6
Weakly Oxidised Carbonatite FC-LCT3	Primary / Fresh Zone	Nb_2O_5 Final Concentrate	47.5	61.0
Moderately Oxidised Carbonatite MOC-LCT1	Transition / Mod Oxidised	Nb_2O_5 Final Concentrate	44.7	55.2
Strongly Oxidised Carbonatite LCT4-CompD	Weathered / Strongly Oxidised Zone	Nb_2O_5 Final Concentrate	41.4	52.0
Strongly Oxidised Carbonatite OC-LCT1	Weathered / Strongly Oxidised Zone	Nb_2O_5 Final Concentrate	41.7	51.6

Note: the concentrate grades in the table are prior to phosphates and carbonate removal which increases Nb_2O_5 concentrate grades to between 45% and 55%, the standard for the niobium aluminothermic process.

The locked cycle tests were interpreted in the context of lithologies and head grades during which a strong trend between silicate levels in flotation feed (effectively a marker for oxidation profile in the carbonatites) and niobium recovery was identified as shown below in Figure 1. At this stage the algorithm identified is considered a good predicator for recovery and will confirmed through further test work.

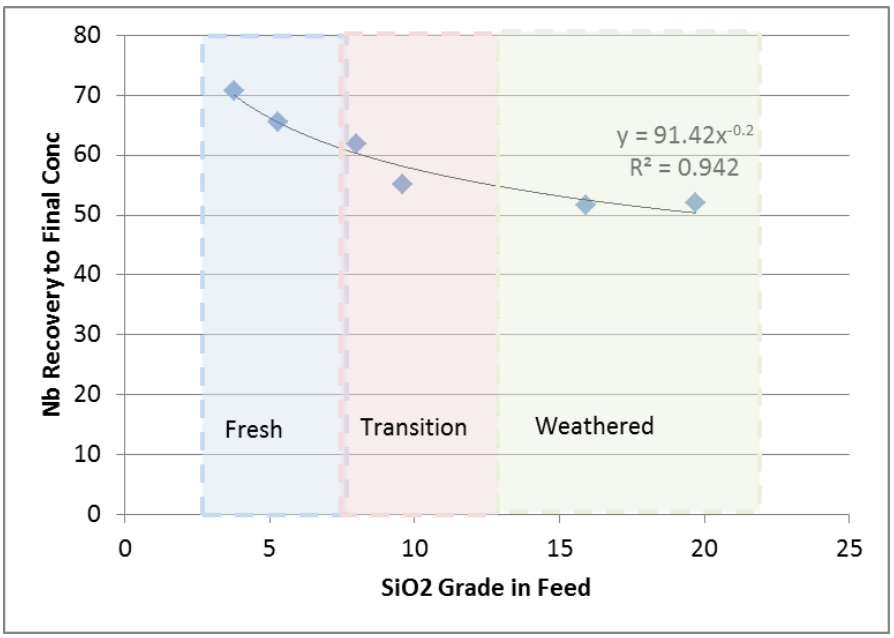

Figure 1: Niobium Recovery Trend

Silicate was identified early on in the test work program as a potential contaminant in in the final concentrate prior to ferro-niobium production. Although some success was had in the flotation work in reducing the silicate levels, an alternative process has been identified as part of the leaching test work undertaken. The leach stage is required to manage phosphate and sulphur levels in the concentrate, but during the test work it was seen that under the right conditions silicate level could also be reduced. This was tested to the extreme using a low grade concentrate (~36% Nb_2O_5) with high silicate levels (~22% SiO_2) that after leaching produced a high grade residue (~53% Nb_2O_5) with silicate levels ~2% which meets the required converter feed specification of <3.5%SiO_2.

The required leaching conditions include a two-stage leach process with an acid leach followed by an alkaline leach, both of which occur under atmospheric conditions under only moderate temperatures (~50 deg. C). Under these relatively benign conditions no niobium losses occur as the pyrochlore and columbite minerals are refractory. This therefore presents an opportunity to maximise flotation recovery in the flotation circuit and manage grade through the leach circuit. The unit cost of this leaching step is relatively low as it occurs after the production of concentrate and the basis of the proposed leaching process was already included in the flow sheet for cost estimating purposes.

A summary of the leach test results are shown in Table 2 below.

Table 2: Leaching Test Results

Test #	**Leach Feed**			**Leach Residue**		
	%Nb_2O_5	**%SiO_2**	**%P_2O_5**	**%Nb_2O_5**	**%SiO_2**	**%P_2O_5**
CL2 (fresh carbonatite)	49.6	7.2	0.28	52.6	2.61	0.07
CL9 (oxidised carbonatite)	49.5	11.3	0.29	57.5	1.05	0.05
CL10 (strongly oxidised carbonatite)	36.5	21.9	0.38	53.5	2.17	0.06

The results from this program of test work demonstrate that:

- All major material types defined within the deposit can produce high grade concentrates at varying recoveries. The recovery depends upon the level of weathering/oxidation;
- The processing conditions for all carbonatite material type are similar with only minor changes in reagent addition rate required;
- Phosphate and silicate levels in the flotation concentrates can be easily managed in the leach circuit; and
- A simple algorithm has been defined which should allow an accurate prediction of niobium recovery.

The next phase of the metallurgical test work program will start in February 2015 and will consist of a variability study based on the optimised flowsheet identified in the work reported here and using samples collected across the length and depth of the latest optimised pit shell. This phase of work will take approximately two to three months to complete and will be reported as part of the Feasibility Study.

Grant Davey, the Managing Director of Cradle, commented: *"This second phase of metallurgical testing has confirmed the good metallurgical response of the carbonatite materials from Panda Hill. Good progress has been made with reducing the reagent consumptions, which will assist in reducing the plant operating costs further."*

Project Background

The Panda Hill Niobium Project (Figure 2) is located in the Mbeya region in south western Tanzania approximately 650km west of the capital Dar es Salaam. The industrial city of Mbeya is situated only 35km from the Project area and will be a significant service and logistics centre for the Project. Mbeya has a population of approximately 280,000 people, located on the main highway to the capital Dar es Salaam and is completing the construction of a new international airport.

The Project is covered by three granted Mining Licenses (Figure 2) totalling 22.1km^2, and has excellent access to infrastructure, with existing roads, rail, airports and 220kV power available in close proximity to the project area. The three granted Mining Licenses are due for renewal in November 2016 and under Tanzanian Mining Legislation can be renewed for a further 10 year period on completion of the approved work programs on the Project.

The Panda Hill carbonatite intrusion has been subject to multiple phases of exploration work since the 1950s. This work has targeted the Niobium and Phosphate endowment of the deposit. From 1953 to 1965, the Geological Survey of Tanzania (GST) undertook mapping, diamond drilling and trenching (17 diamond holes for 1,405m) to assess the Niobium and Phosphate potential of the deposit.

From 1954 to 1963, the MBEXCO joint venture was formed between N. V. Billiton Maatschapij (Billiton) and Colonial Development Corporation, London. MBEXCO drilled 66 diamond holes for 3,708m, excavated numerous pits, sunk two shafts and undertook trial mining and constructed a trial gravity and flotation plant on site. Concentrate from site was sent to Holland for further processing, with positive early metallurgical test work results noted.

From 1978 to 1980 a Yugoslavian State Enterprise (RUDIS) undertook a joint study in collaboration with the Tanzanian Mining Industrial Association and State Mining Corporation (STAMICO). This work included mapping, diamond drilling and pitting (13 diamond holes for 1,306m) to test the Niobium endowment of the deposit. Detailed reports have been secured from this program.

Cradle completed a 13 hole (1703m) diamond drilling programme in September 2013. This confirmed historical information and enabled Cradle to produce an updated Indicated and Inferred resources estimate. The initial independent Scoping Study undertaken was supported by a Board decision to progress the Project to a Definitive Feasibility Study level.

Cradle entered into a project funding agreement with Tremont through which Tremont is able to acquire 50% of the Project by investing US$20 million to be used towards the Definitive Feasibility Study as well as the initial project development costs.

Cradle expects to complete a Definitive Feasibility Study by 3rd Quarter 2015. The Pre-feasibility Study phase is well underway with completion on track for 1st Quarter 2015.

Panda Hill Niobium Resource

The Panda Hill Niobium Project has a global Indicated and Inferred Resource of 81.8Mt at 0.52% Nb_2O_5 (76.4Mt at 0.41% Nb_2O_5 Inferred and 3.2Mt at 0.52% Nb_2O_5 Indicated above a 0.3% Nb_2O_5 lower cut-off). The Resource was last updated in October 2013 by Coffey Mining and is currently the focus of an infill drilling program to increase the endowment of Indicated Resources. The 2014 field program is expected to produce a resource with a refined lithological and grade model.

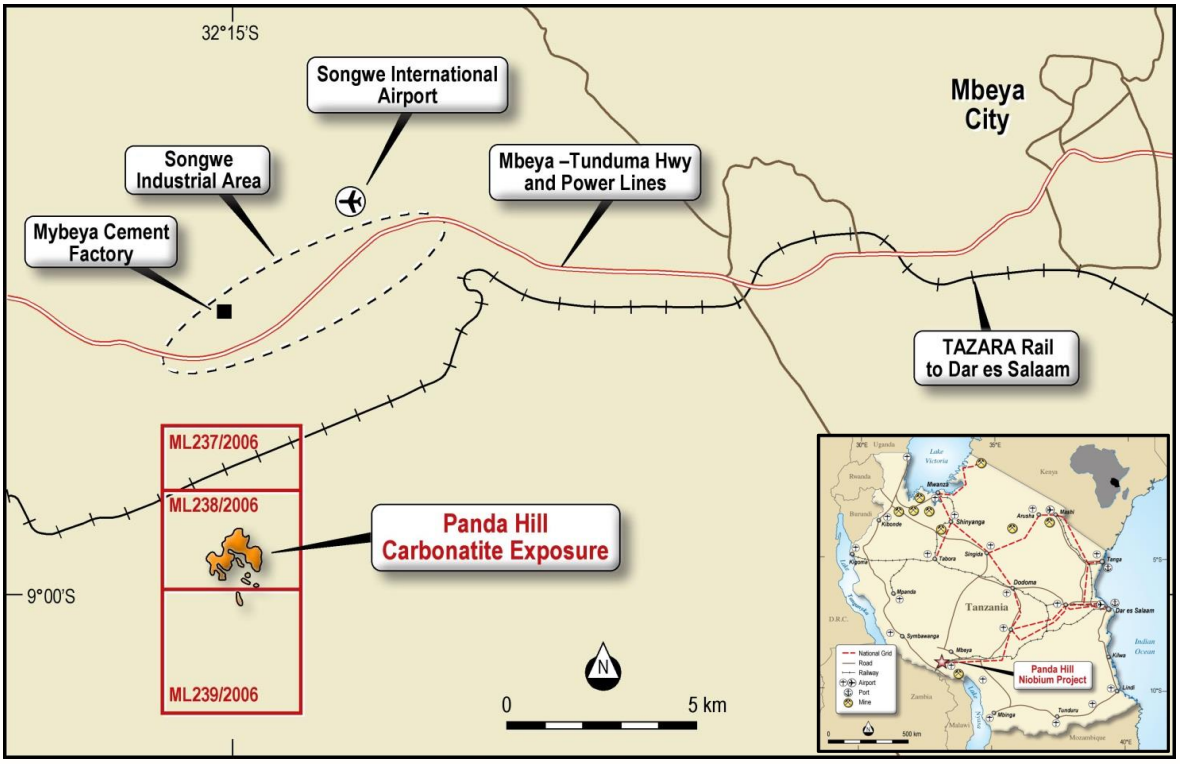

Figure 2: Location of the Project Tenure and Surrounding Infrastructure

By order of the Board

Competent Person's Statement

The information in this document that relates to 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 2004 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 information relating to the Mineral resource is extracted from the report entitled 'Substantial Upgrade to Panda Hill Resource' created on 8th November 2013 and is available to view on www.cradleresources.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources 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 announcement.

For further information, please visit www.cradleresources.com.au or contact:

Grant Davey Managing Director Tel: +61 8 9389 2000