

31 January 2017

ASX Release

ASX Code: CXX

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## December 2016 Quarterly Activity Report

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### Highlights

- **Front-end Engineering and Design (FEED) activities were completed during the period with the following enhancements:**
  - Capital costs reduced by US\$10 million
  - Operating costs confirmed as similar to previously reported values
  - Execution schedule reduced by 3 months
- **Debt financing progressing well with leading European bank**
- **Final negotiations underway for offtake agreements**
- **Prison relocation agreement finalised and submitted to Government for sign-off**

### Definitive Feasibility Study (DFS)

All activities associated with the Company's DFS were completed during the June Quarter.

### Front End Engineering and Design (FEED)

The FEED program was completed during the period, with the final report planned for issue in Q1 2017. The highlights from the work carried out by the various consultants are:

- Project capital costs have been reduced by circa US\$10 million compared to the DFS
- Estimated operating costs (including mine, plant and overheads) are similar to the DFS values
- Schedule for the execution of the project has been reduced by 3 months (to 18 months)
- Mine and infrastructure design have been significantly de-risked
- Engineering, Procurement, Construction Management (EPCM) bids were received from three consultants and are being adjudicated
- Preferred contractors have been selected for the project construction services and operations, including mining and plant operations
- Drilling of the water bores was completed with significant water seen in four of the holes. Permit applications have been submitted
- HAZOP 3 (hazard and operability study) was conducted in October and the drawings and design criteria updated to reflect the changes
- Business Risk register was updated at the end of December
- Human Resources policies and conditions of service manual was completed and presented to the Panda Hill Tanzania Limited (PHT) board for approval in principle

### Marketing

Marketing and offtake discussions are ongoing with parties who cover the major regions associated with the niobium market.

Potential project financiers are engaged with the preferred offtake partners in order to ensure a holistic marketing and financing solution.

### **Financing**

Senior project debt funding discussions continue to progress well. The project debt arranger, a leading European bank, is continuing with various work streams to enable it to complete project due diligence work, targeting credit approval for the loan facility prior to June 2017. Cradle will provide further updates as debt funding discussions progress.

### **Prison Relocation**

The PHT shareholders approved minor changes to the proposed Prison Agreement as requested by the Tanzanian Prison Service (TPS) and the final document was forwarded to the Commissioner General of Prisons for sign off. The final version was accepted by the TPS and has been submitted to the Department of Home Affairs and the Attorney General in Tanzania for sign-off.

### **Technical Activity during the Quarter**

#### ***Mining and Engineering Activity***

The work carried out in the quarter focused on the progress of the activities defined in the FEED scope. Specifically, the following occurred during the period:

#### Engineering

- The MDM FEED design team completed the HAZOP 3 Review for all process areas. All comments and concerns were included in the revised process flow diagrams (PFDs) and piping and instrumentation drawings (P&IDs)
- MDM focused on finalising the capital and operating costs through various clarification meetings held with all equipment suppliers and contractors
- Review meetings were held to address critical cost items and optimisation opportunities. Areas identified included bulk earthworks, civils, structural steel, access road and tailings storage facility (TSF)
- Furnace bids were received from two furnace suppliers. Tender submissions were reviewed by the appointed furnace consultant and a preferred vendor recommended
- MDM continued investigating the design of the acid and caustic leach circuit. An independent consultant has been brought in to assist in this process
- Paterson & Cooke submitted a final report on the hydraulic design of the TSF pipeline
- Bids have been received for the following and preferred bidder status awarded:
  - a. Bulk earthworks
  - b. TSF construction
  - c. Road construction
  - d. Civils construction
  - e. Mining drill and blast
  - f. Mining load and haul
- The revised capital cost estimate was US\$186 million (vs. US\$197 million in the DFS). Significant savings were made in the TSF construction, mine haul road and access road
- The revised Life of Mine (LOM) operating cost estimate was US\$61.15/tonne mill feed (vs. US\$61.63/tonne mill feed in the DFS)
- Construction schedule reduced from 21 months to 18 months
- The draft of the FEED Report has been completed
- EPCM bids were received from three consultants and are being adjudicated

#### Tailings and Water

- Modelling of the Intermediate Stockpile (ISP) and Low Grade Stockpile (LSP) pollution control dam and related storm water management trenches and berms was completed
- Contractor rates were reviewed and final costing exercises were completed
- Final drawings reviewed
- The various FEED reports were finalised
- Work continued on the TSF detailed design
- An opportunity was identified that can make the dam simpler to construct in the initial stages and delay some of the start-up capital expenditure until the third year. This proposal was modelled and it was agreed to use this concept in the detailed design

#### Mining

- Mining tenders were received and evaluated. Clarification meetings were held and recommendation made as to the preferred contractor
- FEED report was completed
- Contractors were asked to submit a separate bid for the drilling and blasting services (previously this bid was included in the Mining Tender). Sound Mining Solutions evaluated the separate and combined bids and negotiations are ongoing which could result in a reduction to the overall mining costs

#### Mine Site Activities

- Mine site visit was conducted with the EPCM major work package contractors and bidders
- The mine site team assisted with the water drilling. Nine holes in total were completed to on average 150 metres deep of which 4 encountered significant quantities of water
- Water extraction permits for the yielding boreholes were submitted to the Lake Rukwa Water Board
- The extraction permit application for the water from the Songwe River was published in the government gazette for a 40 day comment period. Lake Rukwa Water Board will meet in Q1 2017 to finalise and approve
- The team continued their discussion with Tazara (rail) and Tanesco (power) around infrastructure requirements
  - Tanesco approved offtake from their existing power line for the early works functions (construction camp etc.). This line will be upgraded later
  - Tazara approved the construction of the access road in areas where it impacted or crossed over their existing rail tracks
- Site team met with Mbeya Regional Commissioner and local Songwe Council to discuss the proposed stakeholder engagement plan

#### ***Environmental, Social and Community Activities***

PHT continued with the various community and stakeholder liaison meetings during the period. An agreement was reached with the community to relocate the ritual site on Panda Hill and also for PHT to wall the burial site on the north-eastern side of the tenement.

There are no community impediments to the project proceeding.

Water flow sampling of the Songwe River continues for the environmental baseline assessment.

#### **Corporate Activity during the Quarter**

On 1 December 2016, Sam Smart was appointed as Company Secretary.

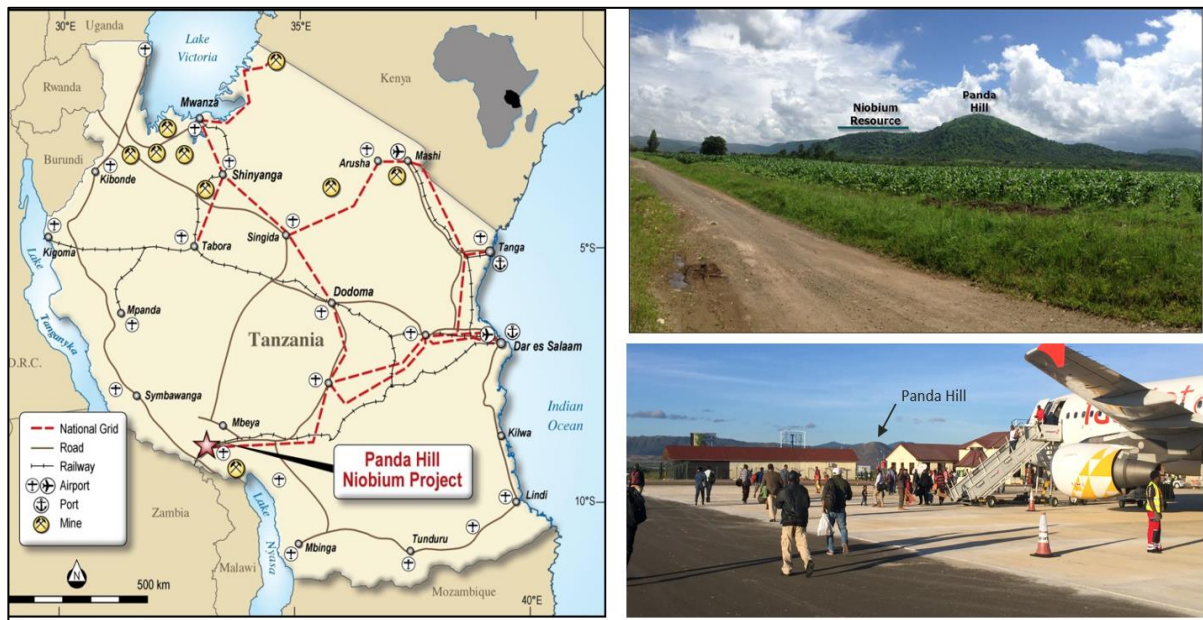
## Tenement Summary

As at 31 December 2016, PHT, the joint venture company owned 50% by Cradle and 50% by Tremont Investments Limited, held the following interests in tenements:

Project	Tenement Number	Percentage Interest
Panda Hill Niobium, Tanzania	ML237/2006	100%
Panda Hill Niobium, Tanzania	ML238/2006	100%
Panda Hill Niobium, Tanzania	ML239/2006	100%

## Panda Hill Niobium Project Overview

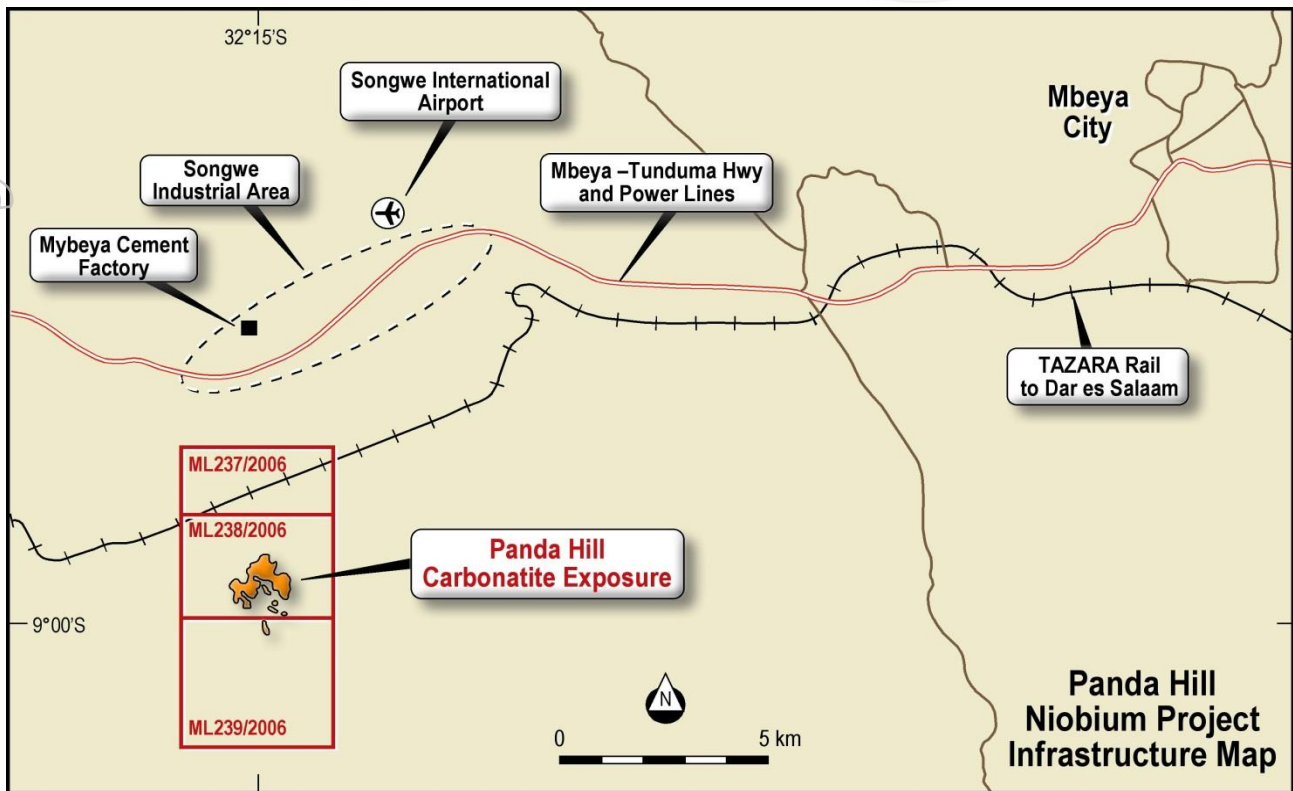
The Panda Hill Niobium Project (Figure 1) is located in the Mbeya region in south western Tanzania, approximately 680km west of the capital Dar es Salaam. The industrial city of Mbeya is situated only 26km from the project area and has a population of approximately 280,000 people. The Project is located near the main highway to the capital Dar es Salaam and in close proximity to the Songwe Airport which has regular domestic flights from Dar es Salaam and plans for regional expansion.



**Figure 1: Location of the Panda Hill Niobium Project**

The Project is covered by three granted Mining Licences (Figure 2) totalling 22.1km<sup>2</sup>, which will enable a quick transition from the study and development phases, through construction and into operation. The area has excellent access to infrastructure, with existing roads, rail, airports and power available in close proximity. The three granted Mining Licences were all renewed in the December 2015 quarter for a further 10 year period (valid until November 2026).





**Figure 2: Mining Licences and Local Infrastructure**

#### **Competent Person's Statement**

The information in this document relating to the Panda Hill Mineral Ore Reserve is extracted from the announcement entitled 'ORE RESERVES FOR PANDA HILL DECLARED' dated 12 June 2016 and is available to view on [www.cradleresources.com.au](http://www.cradleresources.com.au). The information in this document relating to the Panda Hill Definitive Feasibility Study is extracted from the announcement entitled 'DEFINITIVE FEASIBILITY STUDY ON PANDA HILL' dated 20 April 2016 and is available to view on [www.cradleresources.com.au](http://www.cradleresources.com.au). The information in this document relating to the Panda Hill Mineral Resources is extracted from the announcement entitled 'Significant Resource Upgrade for Panda Hill Niobium Project' dated 30 April 2015 and is available to view on [www.cradleresources.com.au](http://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 announcements and that, in the case of Mineral Resources or Ore Reserves, all the 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.

*By order of the Board*

## Appendix 5B

### Mining exploration entity and oil and gas exploration entity quarterly report

Introduced 01/07/96 Origin Appendix 8 Amended 01/07/97, 01/07/98, 30/09/01, 01/06/10, 17/12/10, 01/05/13, 01/09/16, 31/12/16

<b>Name of entity</b>	
CRADLE RESOURCES LIMITED (ASX CODE: CXX)	
<b>ABN</b>	<b>Quarter ended ("current quarter")</b>
60 149 637 016	31 December 2016

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (6 months) \$A'000
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers		
1.2 Payments for		
(a) exploration & evaluation	(329)	(2,325)
(b) development	-	-
(c) production	-	-
(d) staff costs	-	-
(e) administration and corporate costs	(366)	(734)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	6	14
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Research and development refunds	-	-
1.8 Other (reclaim of exploration & evaluation costs)	-	69
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(689)</b>	<b>(2,976)</b>
<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire:		
(a) property, plant and equipment	-	-
(b) tenements (see item 10)	-	-
(c) investments	-	-
(d) other non-current assets	-	-

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (6 months) \$A'000
2.2	Proceeds from the disposal of:		
	(a) property, plant and equipment	-	-
	(b) tenements (see item 10)	-	-
	(c) investments	-	-
	(d) other non-current assets	-	-
2.3	Cash flows from loans to other entities	(23)	(61)
2.4	Dividends received (see note 3)	-	-
2.5	Other (provide details if material)	-	-
2.6	<b>Net cash from / (used in) investing activities</b>	<b>(23)</b>	<b>(61)</b>
<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of shares	-	-
3.2	Proceeds from issue of convertible notes	-	-
3.3	Proceeds from exercise of share options	-	-
3.4	Transaction costs related to issues of shares, convertible notes or options	-	(38)
3.5	Proceeds from borrowings	-	-
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (Monies held for onsite cash spend)	3	(10)
3.10	<b>Net cash from / (used in) financing activities</b>	<b>3</b>	<b>(48)</b>
<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	3,140	5,571
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(689)	(2,976)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(23)	(61)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	3	(48)

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (6 months) \$A'000
4.5	Effect of movement in exchange rates on cash held	63	8
4.6	Cash and cash equivalents at end of period	2,494	2,494

5.	Reconciliation of cash and cash equivalents at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	Current quarter \$A'000	Previous quarter \$A'000
5.1	Bank balances	2,494	5,571
5.2	Call deposits	-	-
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
5.5	Cash and cash equivalents at end of quarter (should equal item 4.6 above)	2,494	5,571

6.	Payments to directors of the entity and their associates	Current quarter \$A'000
6.1	Aggregate amount of payments to these parties included in item 1.2	114
6.2	Aggregate amount of cash flow from loans to these parties included in item 2.3	-
6.3	Include below any explanation necessary to understand the transactions included in items 6.1 and 6.2	
	Directors' fees and corporate administrative reimbursements	

7.	Payments to related entities of the entity and their associates	Current quarter \$A'000
7.1	Aggregate amount of payments to these parties included in item 1.2	-
7.2	Aggregate amount of cash flow from loans to these parties included in item 2.3	-
7.3	Include below any explanation necessary to understand the transactions included in items 7.1 and 7.2	



## 8. Financing facilities available

Add notes as necessary for an understanding of the position

8.1 Loan facilities

8.2 Credit standby arrangements

8.3 Other (please specify)

8.4 Include below a description of each facility above, including the lender, interest rate and whether it is secured or unsecured. If any additional facilities have been entered into or are proposed to be entered into after quarter end, include details of those facilities as well.

Total facility amount at quarter end \$A'000	Amount drawn at quarter end \$A'000
-	-
-	-
-	-

NIL

## 9. Estimated cash outflows for next quarter

\$A'000

9.1 Exploration and evaluation

9.2 Development

9.3 Production

9.4 Staff costs

9.5 Administration and corporate costs

9.6 Other (provide details if material)

9.7 Total estimated cash outflows

200

10.	Changes in tenements (items 2.1(b) and 2.2(b) above)	Tenement reference and location	Nature of interest	Interest at beginning of quarter	Interest at end of quarter
10.1	Interests in mining tenements and petroleum tenements lapsed, relinquished or reduced				
10.2	Interests in mining tenements and petroleum tenements acquired or increased				

**Compliance statement**

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Sign here: .....  
(Company Secretary)

Date: 31 January 2017

Print name: Sam Smart

**Notes**

1. The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity that wishes to disclose additional information is encouraged to do so, in a note or notes included in or attached to this report.
2. If this quarterly report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, AASB 6: Exploration for and Evaluation of Mineral Resources and AASB 107: Statement of Cash Flows apply to this report. If this quarterly report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standards apply to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.