Quarterly Activities Report
For the Period Ended 31 December 2019

Pensana Metals Ltd (ASX: PM8) (the Company or Pensana) is pleased to present its quarterly activities report for the period ended 31 December 2019.

Highlights

- **Preliminary Feasibility Study delivers strong economics for the Longonjo NdPr Project.**
- **Mining 2 mtpa of near surface weathered material and producing 56,000 tpa of NdPr rich concentrate.**
- **Definitive Feasibility Study commenced.**
- **7,000 metre infill and extension RC drilling programme commences.**
- **60 tonne bulk sample transported from site by rail to the port of Lobito and shipped to Australia for pilot plant test-work.**
- **Angolan permitting, studies and mining licence submissions progressing on schedule.**
- **London Stock Exchange main board standard listing on track for before end of Q1 2020, subject to regulatory approvals.**

Preliminary Feasibility Study

During the quarter, results of the Preliminary Feasibility Study were reported (''**Study**'') for the Longonjo NdPr Project ("**Longonjo Project**") located in an infrastructure rich region of Angola (ASX: 15 November 2020).

The Study was coordinated by Wood Group and is based on open pit mining and two-phase development of a 2 million tonnes per year processing plant and associated infrastructure, producing on average 56,000 tonnes per year of NdPr concentrate for export.

Strong Project Economics Indicated

- An upfront capital cost of US$ 131 million, including mine development, process plant and infrastructure, and 15% cost growth allowance.
- Estimated 14 months construction and commissioning.
- Project economics have been evaluated under base, high and low-price forecasts developed by Roskill.

	Gross Revenue	EBITDA	Pre-tax IRR	Payback
	$ million	$ million	%	Months
High	2,733	2,068	129%	11
Base	1,984	1,319	101%	13
Low	1,448	782	64%	17

Notes: See Table 1 for material assumptions.

Financial highlights are reported in US dollars as at November 2019 on a 100% project basis. The production target and financial information is based on the stated material assumptions and additional information set out in the Study. Financial highlights are reported before corporation and other taxes including royalties.

- Access to major rail and power infrastructure significantly reduces the capital cost and allows for the development of the mine as a simple flotation operation producing a concentrate for export avoiding the need to invest in a complex and expensive chemical processing plant.
- The open pit mine, which has an average depth of 25 metres and a negligible strip ratio may be extended if infill drilling of some of the large amount of Inferred Mineral Resources is successful. There is also the potential to extend the near surface of blanket weathered mineralisation in several areas where it remains open along strike through additional drilling.
- As the mine progresses it will expose the underlying fresh rock material from which the company has reported some promising intersections with the potential to add a further new dimension to the project.
- The mine will be a significant NdPr producer outside China and the first major rare earth mine to be developed since 2012.
- For the first three years of operation, the project intends to process 1.5 mtpa higher grade resources, producing 60,000 tonnes of concentrate in each year and containing 4,600 tpa NdPr and 20,700 tpa REO. From the fourth year of operation the front end of the plant will be expanded to process 2 mtpa and maintain concentrate and NdPr production.
- Detailed front-end engineering studies have commenced, including investigation of the potential deferral of capital expenditure thereby further reducing the initial capital cost.

ESG designed in from day one

- The Company is designing into the project the highest standards of ESG compliance from the outset. The main frameworks which have been used are the Equator Principles, the very highest environmental standards and Scope 1, 2 and 3 emissions under the Green House Gas protocol (GHGP).

- Access to low carbon power from the Luaca hydro-electric dam via the national grid and local PV and storage facilities at the mine site and the use of rail rather than road transport for the concentrates will give the mine a low carbon footprint.

- The operation will use a closed circuit zero discharge process water circuit and a tailings storage facility designed to store benign tailings during operations which will be rehabilitated at the end of the mine life.

- The mine will have a positive impact on the local community by providing training for the approximately 260 jobs the mine will create, Local businesses will benefit from the opportunity to provide services to the mine. Community consultations are well advanced and ongoing with baseline studies completed. A particular focus is on training young women for technical and engineering roles.

Neodymium oxide market moving into deficit

- A number of commodity analysts have forecast that the NdPr oxide market will move into deficit in the next few years as demand takes off for magnets in EVs and other forms of transport, offshore wind turbines, military applications and a growing universe of green energy applications.

- Adamas Intelligence noted in its report Rare Earth Elements: Market Issues and Outlook Adamas Intelligence Q2 2019 that “Demand for Neodymium oxide will substantially exceed global average production by 2030 leading to shortages of these critical magnet metals if additional sources of supply are not developed”

- The processing of rare earth concentrates is currently limited to a small number of Chinese companies which control nearly 90% of the market. The market for sustainably sourced concentrates is expected to grow as most industries prepare to diversify concentrate supply away from the environmentally damaging local sources.

- In addition, due to the strategic importance of rare earths in general and neodymium in particular, a number of governments and companies around the world are looking to develop local processing capability. These are seen as potential future customers for the mine.

Table 1: Material Assumptions and Outcomes

PRODUCTION ASSUMPTIONS		
Life of Mine	9	years
Average grade, NdPr*	0.61	%
Average strip ratio	0.1:1	waste:feed
Average concentrate production	55,900	tpa_{dry}
Average contained NdPr in concentrate	4,200	tpa
OPERATING COSTS		
Average annual operating cost	65.5	USD million
Total site operating cost per tonne	36.2	USD / tonne
CAPITAL COSTS including growth allowance		
Mine	3.2	USD million
Process Plant	50.5	USD million
Plant Infrastructure & TSF	20.7	USD million
Area Infrastructure	3.3	USD million
Regional Infrastructure	9.7	USD million
Miscellaneous	6.3	USD million
Indirect Costs	18.0	USD million
Growth Allowance	19.3	USD million
Total Capital Pre-production	130.6	USD million
Year 4 Expansion Capital cost (funded by cashflow)	12.5	USD million
TSF expansions (funded by cashflow)	19.4	USD million
Average Annual sustaining Capital	2.9	USD million from year 6
FINANCIAL METRICS (BASE CASE)		
Consolidated total revenue	1,984	USD million
Consolidated average annual revenue	220	USD million
Total Consolidated cash generation (pre-tax and royalties)	1,130	USD million
Average annual EBITDA	146	USD million
IRR pre-tax and royalties	101	%
Payback period (from start of operations)	13	months
CONCENTRATE ASSUMPTIONS		
Concentrate grade	7.5	% NdPr
Concentrate Price (year 1)	3,821	USD / tonne

*NdPr = neodymium+praseodymium oxide

7,000 metre infill and extension drilling programmes commence

An estimated 190 hole, 7,000-metre reverse circulation (RC) infill drilling programme is now well underway on site at Longonjo in support of the Definitive Feasibility Study. The drilling is designed to provide detailed data to support an upgrade of Mineral Resources currently in the Inferred category to Measured and Indicated Mineral Resource categories, as well as to test several potential extensions to known mineralisation.

On 13 January 2020 assay results from the first 16 drill holes were reported to the ASX as highlighted below:

- The results confirm the continuity of high-grade weathered mineralisation from surface over an area extending 250 by 450 metres immediately to the west of the current pit design.
- The results demonstrate the potential to significantly extend the open pit and 9 year mine life of the recently reported Preliminary Feasibility Study (ASX announcement 15 November 2020).
- Several of the infill drill holes intersected higher NdPr grades than estimated by the current Mineral Resource estimate block model in this area.

Drill hole	**Intersection**
LRC175:	**16 metres** at **4.19% REO** including **0.93% NdPr** from surface **LRC180:**
	18 metres at **5.69% REO** including **1.06% NdPr** from surface **LRC181:**
	10 metres at **4.60% REO** including **0.88% NdPr** from surface ***and***
	8 metres at **3.52% REO** including **0.59% NdPr** from 16 metres to end of hole
LRC182:	**16 metres** at **6.53% REO** including **1.27% NdPr** from surface to end of hole
LRC189:	**13 metres** at **6.19% REO** including **1.01% NdPr** from surface to end of hole

*NdPr = neodymium – praseodymium oxide. REO = total rare earth oxides. Intersections reported at a +0.4% NdPr lower grade cut off. See ASX of 13 January 2020, for details of all new results.

Bulk sample shipment to Perth

Four containers carrying over 60 tonnes of near surface weathered mineralisation were loaded at the Longonjo rail siding for despatch to Perth Australia via the Benguela rail line and the Port of Lobito.

Subsequent to the quarter end, the containers arrived at Fremantle Port and were trucked to ALS Metallurgy ahead of the planned pilot plant test-work programme.

Loading samples into container for transportation to Port Lobito

Mining licence application

During the quarter significant progress was made towards the completion of the Technical, Economic and Financial Viability Study, Environmental Impact Assessment study and the application required for the issuance of a Mining Licence in compliance with the Angolan Mining Code.

Subsequent to the quarter end the company lodged a submission for a Mining Licence with the Ministry of Mineral Resources and Petroleum.

LSE / ASX Listing of Pensana Rare Earths Plc

During the quarter, the company progressed with the planned dual listing on the ASX and the London Stock Exchange's Main Board.

On 15 January 2020, Shareholders approved the scheme of arrangement (the "**Scheme**") by which Pensana Rare Earths Plc ("**Pensana UK**") will acquire all of the ordinary shares in Pensana Metals Ltd. The Supreme Court of Western Australia made orders approving the Scheme on 22 January 2020 pursuant to which each shareholder of the Pensana Metals Ltd will receive 1 (one) Pensana UK CDI for every 1 (one) share held in Pensana Metals Ltd on or around 4 February 2020. Once the Scheme is implemented, the Company will become a wholly owned subsidiary of Pensana UK.

Pensana UK is currently working with ASX in order for Pensana UK CDIs to become tradable on a deferred settlement basis. The Company will advise the market of a revised timetable for deferred settlement trading once known.

Pensana UK is also progressing its application for admission to the Official List, Standard Segment and to trading on the LSE's Main Market for listed securities with a view to listing before the end of Q1 2020, subject to the receipt of the required regulatory approvals.

Roadshows were completed in the UK and Europe and significant interest was expressed by major institutional investors to invest in the Company, once this process has been completed.

Authorised by the board of Pensana Metals Limited.

For further information, please contact CEO Tim George at contact@pensanametals.com.

Competent Persons Statements

The information in this report that relates to Geology, Data Quality and Exploration results is based on information compiled and/or reviewed by David Hammond, who is a Member of The Australasian Institute of Mining and Metallurgy. David Hammond is the Chief Operating Officer and a Director of the Company. He has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and the activity which he is undertaking to qualify as a Competent Person in terms of the 2012 Edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves. David Hammond consents to the inclusion in the report of the matters based on his information in the form and contest in which it appears.

The information in this report that relates to the 2019 Mineral Resource estimates is based on work done by Rodney Brown of SRK Consulting (Australasia) Pty Ltd. Rodney Brown is a member of The Australasian Institute of Mining and Metallurgy and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as a Competent Person in terms of The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code 2012 edition).

The information in this report that relates to the Study, including the mining, process design, tailings, preliminary engineering, operating and capital cost estimates summaries is based on work completed by Wood Group.

Compliance Statement

Information relating to Infrastructure, project execution, cost estimating, metallurgical test work, exploration results, Mineral Resource estimates is extracted from the report entitled “Prelmininary Feasibility Study” announced on the 15th of November 2019.

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 estimates, 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.

Summary of Tenement Information as at 31 December 2019

Country	Project Name	License Name	License no.	% Held at 30 September 2019	Change	% Held at 31 December 2019
Angola	Ozango	Ozango Minerais SA	Nº013/03/09/T.P/ANG-MGM/2015	84%	-	84%
Tanzania	Kitongo	Ugambilo East	PL11175/2017	100%	-	100%
	Kitongo	Kitongo West	PL10655/2015	100%	-	100%
	Kitongo	Mwamazengo SE (2)	PL6543/2010	100%	-	100%
	Kitongo	Mwamazengo South	PL6631/2010	100%	-	100%
	Kitongo	Gulumungu	PL10656/2015	100%	-	100%
	Kitongo	Ntalebujika	PL10660/2015	100%	-	100%
	Miyabi	Miyabi Dyke	PL8933/2013	100%	-	100%
	Miyabi	Miyabi North	PL10908/2016	100%	-	100%
	Miyabi	Miyabi Airport New	PL10556/2015	100%	-	100%
	Miyabi	Mwabombo	PL10836/2016	100%	-	100%
	Mtemi G	Kitongo	PL8148/2013	100%	-	100%
	Canuck	Canuck South	PL11017/2017	100%	-	100%