12 March 2019

Wood Group appointed to execute PFS for the expedited development of the Longonjo NdPr Project

Following the recent Mineral Resource upgrade Pensana Metals Limited (ASX:PM8) is pleased to announce that it has appointed the international engineering company Wood Group to execute a Preliminary Feasibility Study (PFS) for the expedited development of the Longonjo NdPr Project.

The study will focus on the delivery of a low capital cost open pit mining operation treating 2 million tonnes a year and exporting 120,000 tonnes of flotation concentrates a year to customers in China via the recently upgraded Benguela rail line and the Atlantic deep-water port of Lobito.

The Company is targeting a capital cost of the Project in the order of US$100 million.

Discussions with potential financiers have commenced and it is expected that a financing package will be finalised to coincide with the completion of the PFS (scheduled for September 2019).

The Company is of the view that given the work that has been completed to date and the relative simplicity of the operation, following the completion of a favourable PFS it should be possible to move immediately to Front End Engineering Design (FEED) and Engineering Procurement Construction Management (EPCM).

Summary

- The PFS will be based on the development of the high-grade weathered zone mineralisation, which the company believes has potential to support over 10 years of mine life at an average mined grade of over 4% rare earth oxide and 0.85% NdPr, utilizing approximately 10% of the total Mineral Resource estimate. An infill drilling programme is under way to upgrade part of the Inferred Resource estimate to the Indicated category for the purpose of the study.

- The base case of the PFS has been increased from 1.5 to 2 million tonnes a year shallow open pit mining and flotation operation producing around 120,000 tonnes of high-grade concentrate for export to customers in China via the recently upgraded Benguela rail line and the Atlantic port at Lobito.

- Hong Kong based commodity marketing consultants Conrad Partners has advised that the Company can expect to receive concentrate sale prices in excess of US$2,000 per tonne CIF China (based on the current US$45,000 per tonne NdPr oxide price).

- The PFS will utilise the flotation flowsheet developed during the previous Scoping Studies. (ASX Announcement Longonjo Magnet Metal Project Study Update RVY 6 December 2017). The Company is working with two established Chinese technical institutes, both highly experienced in rare earth processing, with a view to enhancing the flotation performance and high-grade concentrate production.

- The Company is targeting a capital cost in the order of US$100 million. The Project benefits from the lack of a mining pre-strip, a low strip ratio, a conventional flotation process plant, an adjacent water borefield, a nearby low cost hydro-electric power supply, available labour and in particular excellent transport infrastructure.

- Subsequent studies will focus on an expansion of the 2 million tonnes per annum operation to treat additional NdPr mineralisation from the remaining 90% of this large deposit.

Pensana Metals, Chief Operating Officer Dave Hammond commented:

"The development concept is very straight forward. We are looking at a low capital cost, shallow open pit and flotation operation producing a high-grade concentrate for export to China via the adjacent major rail and port infrastructure.

Last month's substantially increased Mineral Resource estimate has enabled us to bring forward the PFS and increase the throughput from 1.5 to 2 million tonnes per year.

Our aim is to get into production and build our customer base at a time when EV and wind turbine manufacturers are driving the increasing demand for NdPr magnets for electric motors and Chinese rare earth processors are looking for additional low-cost feedstock."

Technical Report

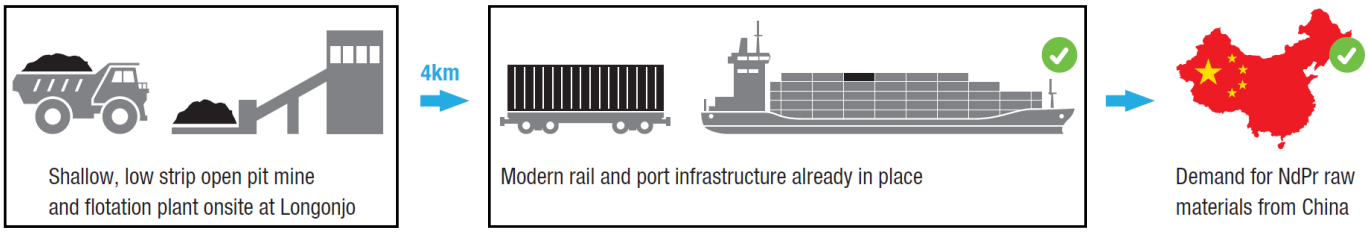
Pensana have appointed international engineering company Wood Group to execute a Preliminary Feasibility Study to investigate an opportunity to fast track the Longonjo NdPr Project into production. Wood Group previously undertook the Scoping Study for Longonjo and have an experienced rare earth mining and development team.

The decision to expedite the development studies follows the completion of a large, high grade Mineral Resource estimate for the Company's 84% owned Longonjo NdPr Project in Angola (ASX report, 19 February 2019).

The PFS base case for the initial development of Longonjo will consist of a shallow open pit mine and flotation plant on site with a design throughput of 2 million tonnes per annum.

The development will leverage off the advantage of the modern rail and port infrastructure already in place on the projects doorstep to ship a high-grade flotation concentrate to customers China.

Longonjo development concept for Preliminary Feasibility Study



Above: Pensana has identified a practical path to early development that aims to position Longonjo as an important supplier of NdPr raw materials in time to meet looming demand from the electrification of vehicles

Initial development studies will focus on the highest grade and quality portion of the Mineral Resource estimate – the near surface weathered zone mineralisation. The Company estimates that there may be potential for sufficient mineralisation of this style at a grade of approximately 4% REO (~0.9% NdPr*) that could support an initial project of over 10 years.

**NdPr – neodymium + praseodymium oxide*

The weathered zone consists of a thick blanket of soft, friable NdPr mineralisation that occurs over an area of approximately 700 x 700 metres to typical depths of 20 metres. Such material is amenable to 'free-dig', shallow open pit mining with a very low waste to mineralisation ratio. Pensana has already demonstrated an effective processing route for this style of mineralisation to produce a high-grade mineral concentrate using flotation techniques.

The high-grade weathered zone subset represents less than 10% of the total Mineral Resource estimate and at a 0.65% NdPr lower cut off includes:

22.9 million tonnes at 4.16% REO including .86% NdPr containing 953,000 tonnes REO including 197,000 tonnes of NdPr

(see Tables 1 to 3 in Appendix for details of the Mineral Resource estimate at arrange of cut-off grades and material types).

Subsequent studies will focus on an expansion of this initial operation to treat additional NdPr mineralisation from this large deposit.

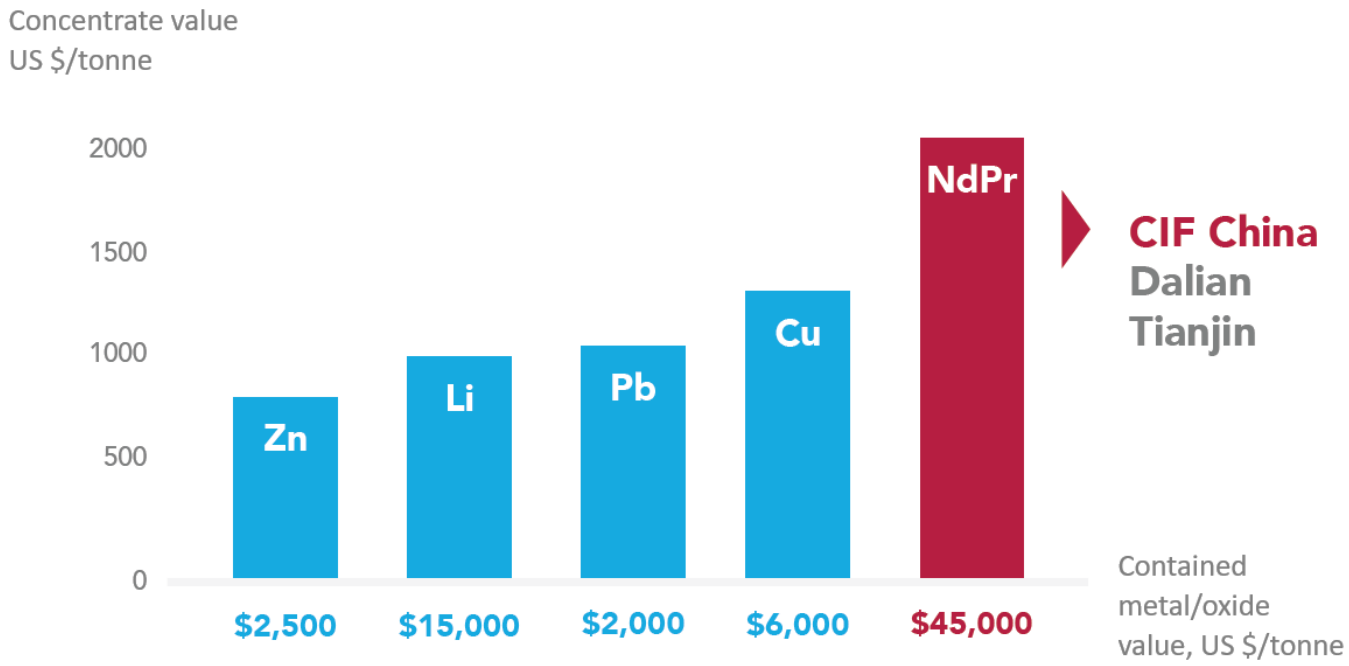
The Chinese built US $1.8 billion Benguela rail line is located just 4 kilometres from the project and runs directly to the Atlantic port at Lobito, linking the project to customers in China. The existing modern infrastructure on the doorstep is a major advantage for the practical and economic development of Longonjo.

The company is targeting a capital cost of circa US$100 million to fast track the project into production of an estimated 120,000 tonnes of high grade NdPr concentrate per annum using the flotation flowsheet developed by Pensana.

The Company is working with Chinese technical institutes to further optimise the concentrate production process flowsheet.

Hong Kong based commodity marketing consultants Conrad Partners has advised that the concentrate sale price is currently in excess of US$2,000t CIF China, based on an NdPr oxide price of US $45,000 / tonne. This compares well with the value of concentrates for other commodities, as illustrated by the following graph:

Comparison of indicative concentrate values for a range of commodities



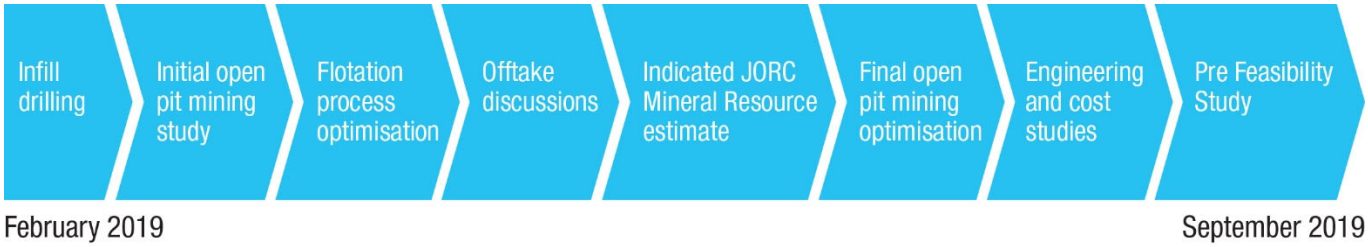
Source: various company ASX announcements, analysts' reports and Conrad Partners Hong Kong

PFS technical programmes:

Working with Wood, the Company has defined technical work programmes to deliver the Longonjo PFS by September 2019.

Studies include additional drilling, optimisation of the flotation process and comminution testwork, mining optimisation studies, a revised Mineral Resource estimate and detailed cost studies based on engineering design work.

Longonjo Preliminary Feasibility Study Technical Programmes

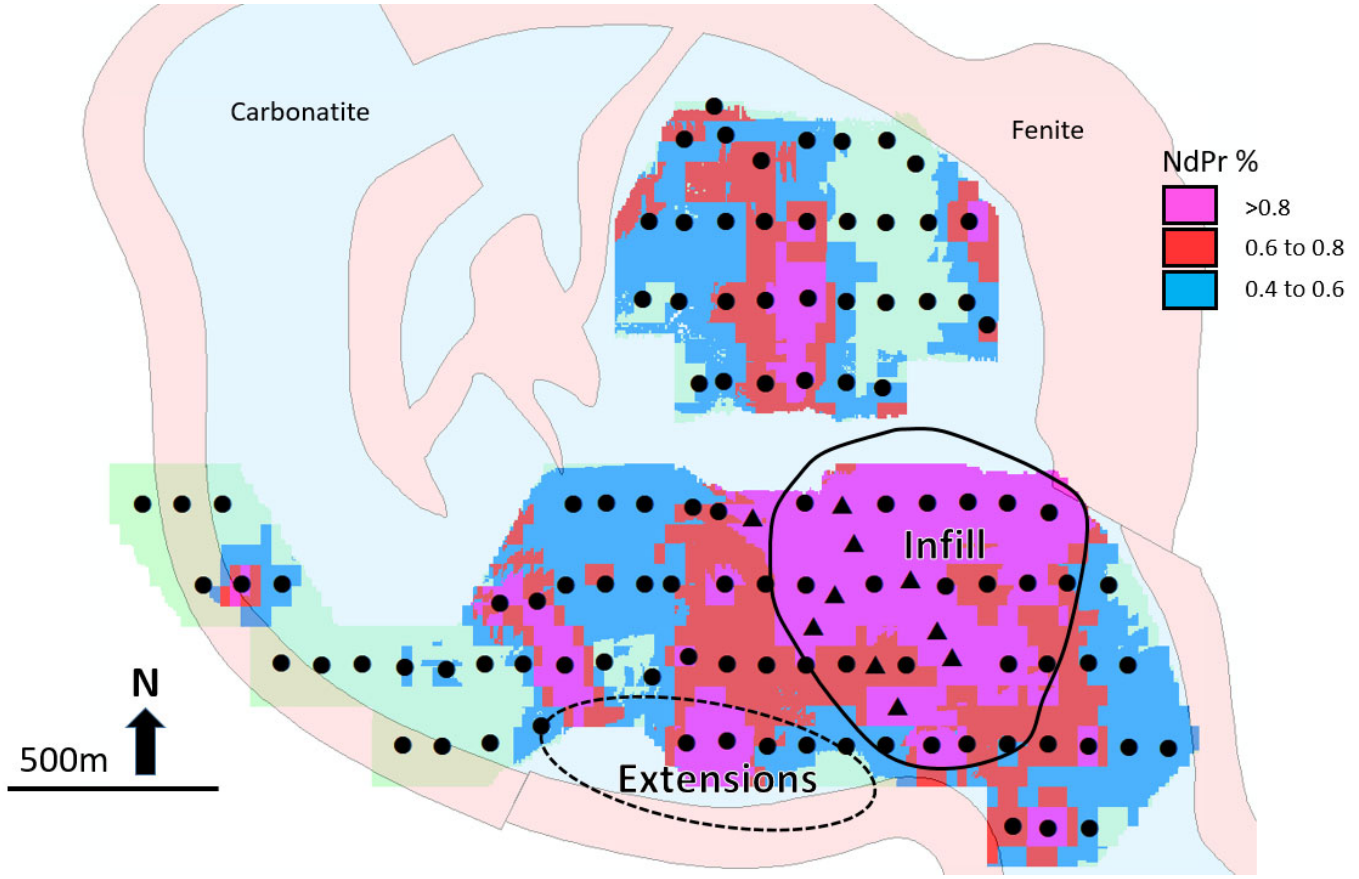


A drilling programme is now nearing completion on site to infill to a 100 x 50 metre hole spacing over the high-grade portion of the weathered

mineralisation. The drilling programme will provide the data required to upgrade to the Indicated JORC 2012 category (see figure below).

Additional drilling, currently in progress, will test the potential for southern extensions to the current Mineral Resource estimate where high grade NdPr mineralisation remains open along the southern margin of the carbonatite. Initial infill drilling assays are expected to be received in April 2019.

Diamond core drilling is scheduled to commence in March to provide additional samples for metallurgical optimisation studies and geotechnical data for open pit design.



Plan view of Mineral Resource block model coloured by maximum NdPr grade over simplified geology of the Longonjo Carbonatite. Existing drill holes are shown as black dots (RC) and triangles (diamond). The areas of infill and exploration drilling now in progress are shown by the solid and dashed outlines.

A preliminary mining study to give an indication of the size of mining equipment needed for the open pit operation will be completed by Wood using the following optimisation parameters:

Table of parameters for preliminary open pit optimisation study.

Optimisation Parameter	Comment
Mineral Resource estimate	SRK Inferred Mineral Resource estimate Block Model February 2019
Plant Feed Lithologies	Weathered and colluvial: oxide material
Waste Lithologies	Unweathered material
Price for Rare Earth Concentrate	USD 2,000/tonne CIF China as advised by Conrad Partners, Hong Kong
Sea Transport Costs, incl. Port Handling	USD 160/$tonne_{con}$
Royalties	5% on strategic minerals
Plant throughput	2.0 million tonnes per annum plant throughput
General and Administration (Excl. Mining Overheads)	USD 5million per annum
Product Rail Transport	USD 60/tonne assume transport in bulk bags in containers
Processing Costs	USD 27.50/tonne ROM
Overall Slope Angle	25° - as per Longonjo Scoping Study
Plant Feed Mineralisation Recovery from Pit	95%
Dilution	5%
SMU	12.5mN, 12.5mE, 2.5mRL from Longonjo Scoping Study
Variable Plant Feed Mining Costs	USD 1.93 / tonne plant feed mining costs include rehandling on ROM pad, rehabilitation costs and sustainable capital costs
Variable Unweathered waste Mining Costs	USD 1.77/tonne including rehabilitation costs and sustainable capital costs, drill and blast included
Variable Weathered waste Mining Costs	USD 1.30/tonne, no drill and blast but includes rehabilitation and sustainable capital costs
Fixed Mining Costs (Mine Overheads)	USD 2.0 million per annum, excluding drill and blast personnel and supervision, capital and owners costs

A final pit optimisation and mine design will be completed once the Indicated Mineral Resource estimate and PFS cost estimates become available.

SRK Consulting have been appointed to complete the revised Mineral Resource estimate, which is scheduled for completion in June 2019.

In the meantime, optimisation of the flotation flow sheet developed by Pensana will continue at technical institutes in China. The Company will also continue to engage with potential offtake partners in China.

The Company looks forward to providing updates on the above technical work programmes as results come to hand. As mentioned previously, the PFS is due to be completed in September 2019.

Competent Persons Statement

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 Australian 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 statement 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).

Appendix

The following tables summarise the Mineral Resource at a range of NdPr cut off grades and mineralisation styles. All are categorised as Inferred according to the JORC (2012) Code and Guidelines. See ASX announcement of 19 February 2019 for further details.

Table 1: Longonjo NdPr Mineral Resource estimate – Total

		Grade		Contained oxide	
Cut off (% NdPr)	**Million tonnes**	**NdPr %**	**REO %**	**NdPr (tonnes)**	**REO (tonnes)**
0.10	240	0.35	1.60	840,000	3,850,000
0.20	178	0.42	1.94	744,000	3,460,000
0.30	114	0.51	2.43	585,000	2,770,000
0.40	68.4	0.63	2.98	428,000	2,040,000
0.50	44.3	0.72	3.47	321,000	1,540,000
0.60	29.6	0.81	3.93	240,000	1,160,000
0.65	23.9	0.86	4.16	205,000	997,000
0.70	19.3	0.90	4.39	174,000	848,000
0.80	11.7	1.00	4.92	117,000	577,000
0.90	6.87	1.11	5.53	76,200	380,000
1.00	4.05	1.22	6.12	49,600	248,000

NdPr is contained within and is a subset of REO. REO = total rare earth oxides, the sum of La_2O_3, CeO_2, Pr_6O_{11}, Nd_2O_3, Sm_2O_3, Eu_2O_3, Gd_2O_3, Tb_4O_7, Dy_2O_3, Ho_2O_3, Er_2O_3, Tm_2O_3, Yb_2O_3, Lu_2O_3, Y_2O_3. See Table 4 for breakdown of all individual rare earth oxides. Figures may not sum due to rounding

Table 2: Longonjo NdPr Mineral Resource estimate – Weathered* mineralisation

		Grade		Contained oxide	
Cut off (% NdPr)	**Million tonnes**	**NdPr %**	**REO %**	**NdPr (tonnes)**	**REO (tonnes)**
0.10	106	0.45	2.03	474,000	2,130,000
0.20	85.2	0.52	2.38	444,000	2,030,000
0.30	65.6	0.60	2.81	395,000	1,840,000
0.40	51.5	0.67	3.18	346,000	1,640,000
0.50	39.5	0.74	3.53	292,000	1,40,000
0.60	28.1	0.82	3.93	229,000	1,100,000
0.65	22.9	0.86	4.16	197,000	953,000
0.70	18.6	0.90	4.39	168,000	816,000
0.80	11.4	1.00	4.91	114,000	560,000
0.90	6.68	1.11	5.51	74,200	368,000
1.00	3.92	1.23	6.10	48,100	239,000

*The Weathered Mineral Resource is contained within and is a subset of the Total Mineral Resource

Table 3: Longonjo NdPr Mineral Resource estimate – Unweathered* mineralisation

		Grade		Contained oxide	
Cut off (% NdPr)	**Million tonnes**	**NdPr %**	**REO %**	**NdPr (tonnes)**	**REO (tonnes)**
0.10	135	0.27	1.27	366,000	1,710,000
0.20	92.7	0.32	1.54	301,000	1,430,000
0.30	48.0	0.40	1.92	190,000	921,000
0.40	17.0	0.49	2.37	82,500	403,000
0.50	4.83	0.60	2.97	29,000	143,000
0.60	1.51	0.74	3.85	11,100	58,000
0.65	1.02	0.79	4.23	8,130	43,300
0.70	0.71	0.85	4.52	6,010	32,100
0.80	0.30	0.99	5.60	2,910	16,600
0.90	0.19	1.07	6.34	1,990	11,800
1.00	0.13	1.13	6.78	1,430	8,530

*The Unweathered Mineral Resource is contained within and is a subset of the Total Mineral Resource

Table 4: Longonjo Mineral Resource estimate: Individual rare earth oxide grades and % of total REO

Rare Earth Oxides		**Oxide grade (%)**	**% of Total REO**
Lanthanum	La_2O_3	0.385	24.05
Cerium	CeO_2	0.737	46.09
Praseodymium	**Pr_6O_{11}**	0.079	4.91
Neodymium	**Nd_2O_3**	0.271	16.98
Samarium	Sm_2O_3	0.039	2.45
Europium	Eu_2O_3	0.009	0.57
Gadolinium	Gd_2O_3	0.019	1.22
Terbium	Tb_4O_7	0.002	0.13
Dysprosium	Dy_2O_3	0.009	0.59
Holmium	Ho_2O_3	0.001	0.09
Erbium	Er_2O_3	0.003	0.20
Thulium	Tm_2O_3	0.000	0.02
Ytterbium	Yb_2O_3	0.002	0.11
Lutetium	Lu_2O_3	0.000	0.02
Yttrium	Y_2O_3	0.041	2.57
Total REO*	**REO**	**1.60**	**100.00**

*Above distribution is calculated for all mineralisation at a 0.10% NdPr lower grade cut.