



14 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 and exporting flotation concentrates to customers in China via the recently upgraded Benguela rail line and the Atlantic deep-water port of Lobito.

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).

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.

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

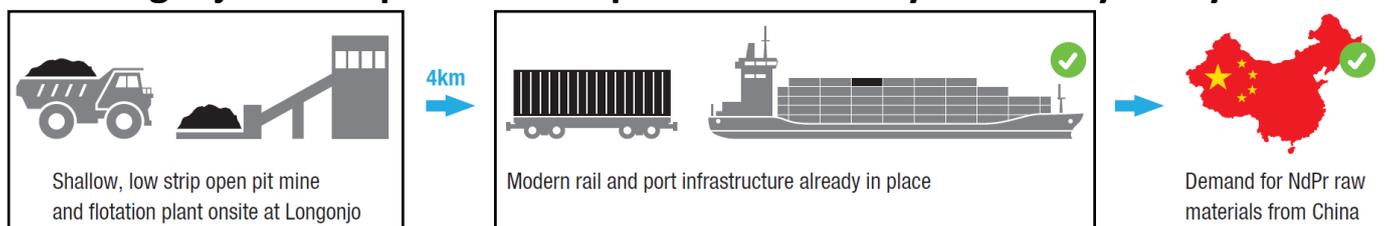
Pensana have appointed international engineering company Wood Group to execute a Preliminary Feasibility Study to investigate an opportunity to fast track the Longonjo NdPr Project into production. Wood Group previously undertook the Scoping Study for Longonjo and have an experienced rare earth mining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

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 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.

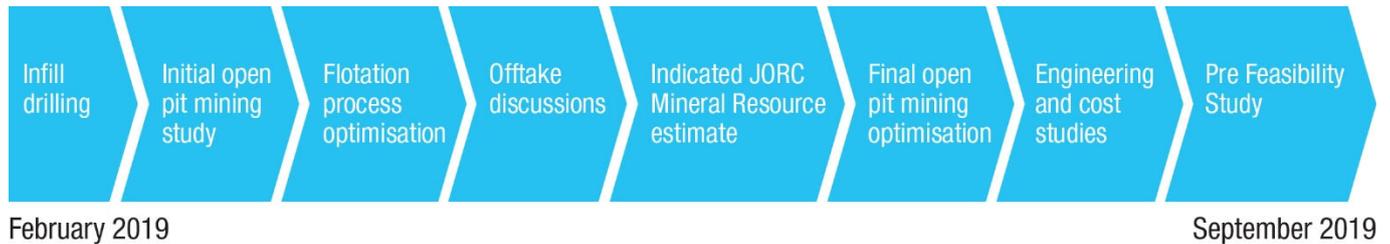
The Company is working with Chinese technical institutes to further optimise the concentrate production process flowsheet.

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.

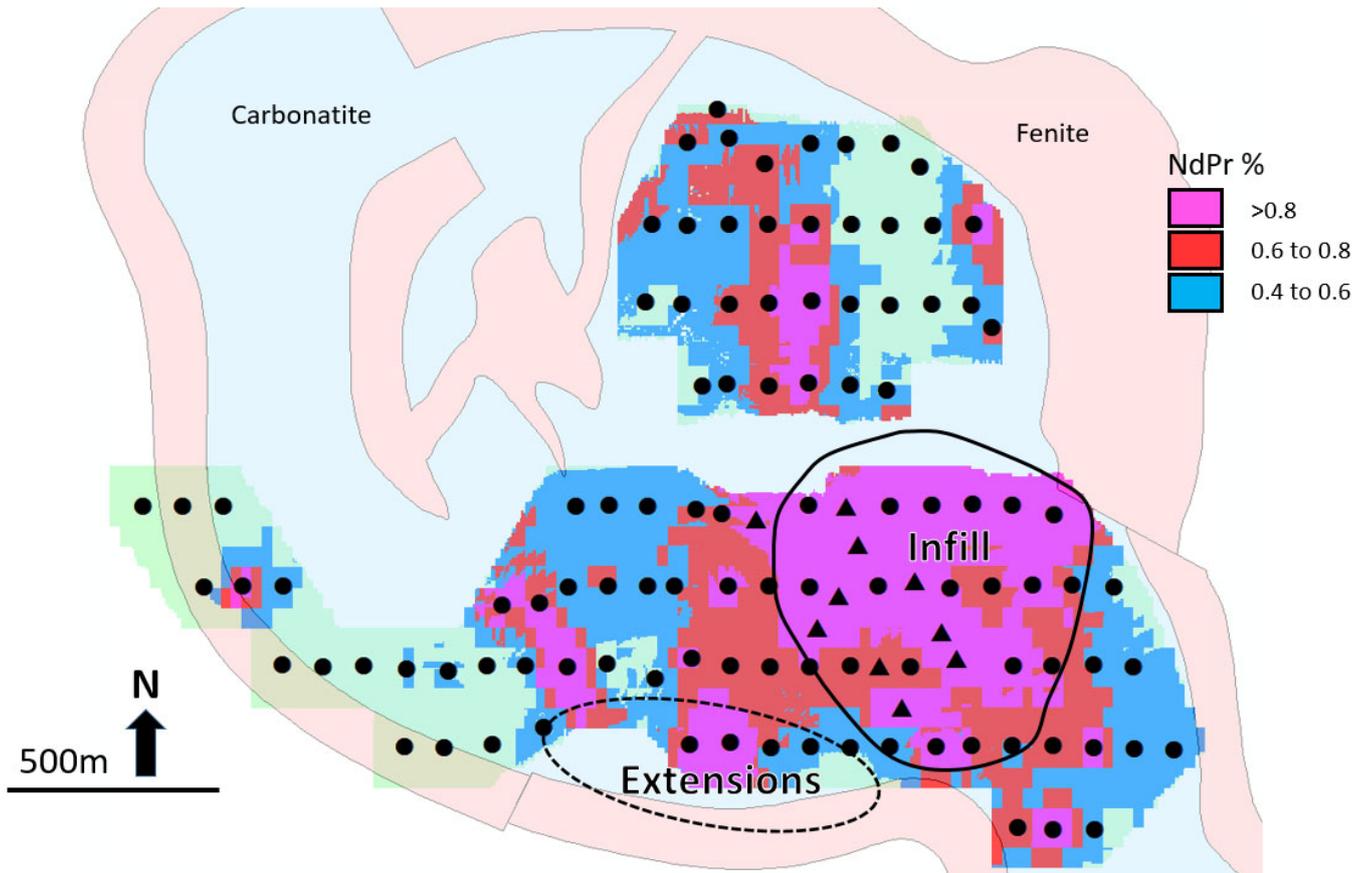
Longonjo Preliminary Feasibility Study Technical Programmes



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 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 context 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).

The Company confirms that it is not aware of any new information or data that materially affects the information included in the above original market announcements. 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.

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

Cut off (% NdPr)	Million tonnes	Grade		Contained oxide	
		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 La₂O₃, CeO₂, Pr₆O₁₁, Nd₂O₃, Sm₂O₃, Eu₂O₃, Gd₂O₃, Tb₄O₇, Dy₂O₃, Ho₂O₃, Er₂O₃, Tm₂O₃, Yb₂O₃, Lu₂O₃, Y₂O₃. 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

Cut off (% NdPr)	Million tonnes	Grade		Contained oxide	
		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	1,400,000
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

Cut off (% NdPr)	Million tonnes	Grade		Contained oxide	
		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 ₂ O ₃	0.385	24.05
Cerium	CeO ₂	0.737	46.09
Praseodymium	Pr₆O₁₁	0.079	4.91
Neodymium	Nd₂O₃	0.271	16.98
Samarium	Sm ₂ O ₃	0.039	2.45
Europium	Eu ₂ O ₃	0.009	0.57
Gadolinium	Gd ₂ O ₃	0.019	1.22
Terbium	Tb ₄ O ₇	0.002	0.13
Dysprosium	Dy ₂ O ₃	0.009	0.59
Holmium	Ho ₂ O ₃	0.001	0.09
Erbium	Er ₂ O ₃	0.003	0.20
Thulium	Tm ₂ O ₃	0.000	0.02
Ytterbium	Yb ₂ O ₃	0.002	0.11
Lutetium	Lu ₂ O ₃	0.000	0.02
Yttrium	Y ₂ O 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.