



ASX RELEASE
31 January 2020

Quarterly Activities Report- December 2019

Highlights

- **Completed PFS confirms strong business case for the TECH Project**
- **Separate PFS commenced on the production of High Purity Alumina (“HPA”) as a co-product for the TECH Project**
- **Successful application and receipt of offer for Australian Federal Grant of A\$2.55M under CRC-P round 8 program**
- **Extended term of ore supply agreement with New Caledonian partners**

Pure Minerals Limited (ASX:PM1) (“**PM1**” or “the **Company**”) is pleased to provide the following update on its activities for the three-month period ending 30th September 2019.

During the quarter, PM1’s wholly owned subsidiary, Queensland Pacific Metals Pty Ltd (“**QPM**”) continued to advance the Townsville Energy Chemicals Hub Project (“**TECH**” or “the **Project**”), culminating in the completion of the Pre-Feasibility Study (“**PFS**”).

Pre-Feasibility Study

The PFS was completed by lead engineering company Lycopodium Minerals Pty Ltd (“**Lycopodium**”) with support from other consultants including Boyd Willis Hydromet Consulting (“**BWHC**”), Xenith Consulting and Saunders Havill Group.

The PFS highlighted the strong economic potential of the Project and has provided PM1 with the confidence to proceed with the commencement of environmental approvals and further feasibility work.

Key outputs of the PFS are detailed below:

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Key Physical Outputs*

Area	Output
Plant design life	30 years
Ore processed	565,714 (wet) tpa
Assumed ore grade	1.60% Nickel and 0.18% Cobalt
Nickel Sulphate production	26,398 tpa
Cobalt Sulphate production	3,097 tpa
Hematite	327,665 wmtpa
Magnesia	20,079 tpa
Aluminium Hydroxide	9,920 tpa

Key Financial Assumptions and Outputs*

Area	Input/Output
Nickel price	USD 7.00/lb + USD 2.00 sulphate premium
Cobalt price	USD 25.00/lb
Exchange rate	0.68
Capex	USD 300m (AUD 441m)
Capex contingency	USD 49m (AUD 72m)
Revenue	AUD 279m
Operating Expenditure	AUD 155m
EBITDA	AUD 124m
Unit costs, net of co-products and sulphate premium (per lb nickel)	USD 0.56 (AUD 0.83)
Pre-Tax NPV (8% discount rate)	AUD 880m
Pre-Tax IRR	25.7%
Post-Tax NPV (8% discount rate)	AUD 568m
Post-Tax IRR	20.1%

For further information regarding the PFS, please refer to the Company's ASX announcement on 9 December 2019.

**PM1 confirms that it is not aware of any new information or data that materially affects the information included in the relevant 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*

High Purity Alumina ("HPA")

The production of HPA was highlighted in the PFS as a significant value-add opportunity for the Project. Given aluminium hydroxide was already produced as a co-product, production of HPA at the TECH Project is a logical progression. This compares with other aspiring HPA producers that are starting at a raw material feed source.



The use of HPA in a coating on separator sheets in lithium-ion batteries is growing. Adding HPA to the product suite of the Project could transform QPM into a 'one-stop shop' for battery manufacturers seeking supply of production inputs.

QPM appointed The Simulus Group ("Simulus") to produce HPA at a bench scale level. Utilising a synthetic liquor representative of what would be generated from QPM's METSIM model for the TECH Project, Simulus successfully produced 4N HPA, demonstrating proof of concept.

Simulus commenced PFS work in December with expected completion during Q1 2020.

Optimisation Activities

The TECH PFS identified opportunities to improve and optimise the Project in a number of areas including flowsheet and energy consumption.

QPM is focusing on the highest value-add opportunities and has commenced optimisation work ahead of commencement of the definitive feasibility study. This work is being carried out by QPM and Prudentia Processing Consulting and includes but is not limited to the following;

- Redesign of iron hydrolysis;
- Alternative thermal decomposition methodologies;
- Acid distillation configuration;
- Use of renewable energy sources; and
- Waste water recovery.

Port of Townsville

QPM had positive discussions during the quarter with Port of Townsville Limited ("POTL") regarding access and storage for imported ore. Indicative terms for ore unloading and storage were provided by POTL and utilised in the PFS. Land has been conditionally allocated by POTL to the TECH Project for construction of an ore storage shed.

Pilot Plant Activities

Planning activities in relation to the pilot plant continued during the quarter and in January 2020, QPM engaged leading metallurgical consultants Strategic Metallurgy to assist with pilot plant activities. Strategic Metallurgy is a Perth-based consulting group with extensive experience in nickel and battery chemicals.

Higher cost activities relating to the pilot plant, including transport of bulk sample, were delayed

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awaiting the outcome of the CRC-P round 8 grants program. Such costs are considered eligible expenditure under the program and therefore it was prudent to hold off on undertaking these activities. Once the grant is finalised, QPM will accelerate these activities.

Extension of Ore Supply Agreement

During the quarter, QPM extended the terms of its existing Ore Supply Agreement with its New Caledonian partners Societe des Mines de la Tontouta ("**SMT**") and Societe Miniere Georges Montagnat S.A.R.L ("**SMGM**"). SMT and SMGM agreed to extend the term of the ore supply agreement for the TECH Project to 10 years (from date of first ore supply), with an additional five-year option period upon mutual agreement. The original agreement was for a five-year term. All other key terms of the agreement remain the same (refer to ASX Announcement 15th October 2018).

QPM is delighted with the support shown by SMT and SMGM in agreeing to this extension.

Memorandum of Understanding ("MOU") with Blue Energy

Per the results of the PFS, energy costs make up the highest proportion of operating costs for the Project. QPM has and continues to explore energy options for the Project and notes potential plans by the Federal Government to pursue a national gas reservation policy that would see the east coast replicating a system similar in Western Australia to provide tariff relief for big gas users.

QPM has entered into a non-binding MOU with Blue Energy Limited (ASX:BLU) regarding the supply of gas for the TECH Project. Blue Energy has significant gas reserves in its ATP 814P Sapphire Block. Blue Energy also has a non-binding MOU with North Queensland Gas Pipelines Pty Ltd ("NQGP") regarding the potential use of the 391km onshore natural gas pipeline system, which transports gas from the Bowen Basin to Townsville. This pipeline runs alongside the Lansdown Industrial Park, the proposed site for the TECH Project.

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CRC-P Round 8 grant

During the quarter, QPM and its project partners Direct Nickel Projects Pty Ltd ("**DNi**") and Commonwealth Scientific and Industrial Research Organisation ("**CSIRO**") applied for a federal government grant under CRC-P round 8. Subsequent to quarter end, QPM was advised that it was successful in obtaining this grant.

The CRC-P grants program was set up to support industry led collaborations with Australian research organisations to develop a product, service or process that will solve problems for industry and deliver real outcomes. CRC-P round 8 also had a specific focus on developing Australia's critical minerals capability.

QPM applied for and has received an offer of a cash grant of A\$2.55M from the Australian Federal Government. In addition, QPM's partners DNi and CSIRO will provide A\$1.6M of in-kind



contributions, increasing the total benefit to QPM to A\$4.15M.

The funding will be put towards ongoing feasibility work for the TECH Project including:

- Operation of the CSIRO / DNi pilot plant to process bulk samples of representative Ni-Co laterite ore from New Caledonia supply partners to produce intermediate product, mixed hydroxide precipitate (“MHP”);
- Construction and operation of a sulphate pilot plant to refine MHP to produce battery grade nickel and cobalt sulphate;
- Product acceptance testwork of nickel and cobalt sulphate for suitability for battery manufacturers;
- Ongoing flowsheet validation for the DNi Process™ and sulphate process; and
- Production of quantities of Magnesium Oxide, Hematite, Aluminium Hydroxide and process residue for validation of downstream value add flowsheets and technical applications.

The provision of this grant demonstrates outstanding support from the Australian Federal Government, in line with its stated objective of developing Australia’s critical metals industry.

Cash

PM1’s cash balance as at 31 December 2019 was \$1.12M.

Tenement Table: ASX Listing Rule 5.3.3

Tenements currently held by PM1 as at 31 December 2019 are detailed in the table below.

Tenement ID	Status	Applic. Date	Granted Date	Expiry Date	Holding	Name	Registered Co.
E08/2693	GRANTED	04-Feb-15	29-Sep-15	28-Sep-20	80%	Mt Boggola	Mineral Developments Pty Ltd
E09/2217	GRANTED	17-Feb-17	13-Sep-17	12-Sep-22	100%	Battery Hub	Pure Manganese Pty Ltd
E52/3523	GRANTED	17-Feb-17	06-Nov-17	05-Nov-22	100%	Battery Hub	Pure Manganese Pty Ltd
E09/2133	GRANTED	19-Dec-14	20-Jul-16	19-Aug-21	100%	Morrissey Hill	Mineral Developments Pty Ltd
E09/2136-I	GRANTED	4-Feb-15	20-Jul-16	19-Aug-21	100%	Morrissey Hill	Mineral Developments Pty Ltd

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EPM27035	GRANTED	28-Aug-2018	12-Feb-19	12-Feb-21	100%	Serpentine Ridge	Queensland Pacific Metals Pty Ltd
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Annual General Meeting

The Company's Annual General Meeting was held during the quarter, with all resolutions being passed.

For more information, please contact:

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This announcement has been approved by the Board of PM1.

About Pure Minerals

Pure Minerals (ASX: PM1), through its wholly owned subsidiary Queensland Pacific Metals Pty Ltd (QPM), is focused on developing a modern battery metals refinery in northern Queensland.

The Townsville Energy Chemicals Hub or TECH, will process imported, high grade Ni-Co laterite ore from New Caledonia to produce nickel sulphate, cobalt sulphate and other valuable co-products.

With established infrastructure, a well-developed labour pool and a long history of processing imported laterite ore, Townsville is the ideal location for the project.

Cautionary Statement:

The PFS referred to in this announcement is a study of the potential viability of the TECH project. It has been undertaken to understand the technical and economic viability of the TECH project.

The Company has concluded that it has a reasonable basis for providing the forward looking statements included in this announcement. The reasons for this conclusion are outlined throughout this announcement. However, the assumptions and results of the PFS set out above and elsewhere in this announcement ("**PFS Parameters**") have been developed through pre-feasibility level work (+/- 25% accuracy) and the use of macroeconomic assumptions. **For the avoidance of doubt, investors are advised that the PFS Parameters do not constitute a production forecast or target in relation to any mineral resources associated with any project owned by PM1 or QPM.** PM1 and QPM wish to expressly clarify that the PFS Parameters are based on an expected grade of nickel-cobalt ore to be imported by QPM under an ore supply agreement with third party New Caledonian ore suppliers. The PFS Parameters have been disclosed by PM1 and QPM in order to provide investors with an intended scale and nature of the Project.

The PFS referred to in this announcement has been undertaken to assess the technical and financial viability of the Project. Further evaluation work, including a Definitive Feasibility Study ("**DFS**") is required before PM1 will be in a position to provide any assurance of an economic development case. The PFS is based on the material assumptions set out in Annexure A. These include assumptions about the availability of funding and the pricing received for the Project's products. While PM1 and QPM consider all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by this PFS will be achieved. To achieve the outcomes indicated in this PFS, pre-production capital in the order of USD 349 million (assuming an exchange rate of 0.68), additional capital for the DFS and working capital is likely to be required.

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Investors should note that there is no certainty that the Company will be able to raise this amount of funding required when needed. It is also possible that such funding may only be available via equity funding which may have a dilutive effect on the Company's share value. The Company may also pursue other strategies in order to realise the value of the Project, such as a sale, partial sale or joint venture of the Project. If this occurs, this could materially reduce the Company's proportionate ownership of the Project. Accordingly, given the uncertainties involved, investors should not make any investment decisions based solely on the results of the PFS.

Competent Persons Statement

Information in this announcement relating to the processing and metallurgy (including the JORC table in Annexure C) is based on technical data compiled by Mr Boyd Willis, an Independent Consultant trading as Boyd Willis Hydromet Consulting (BWHC). Mr Willis is a Fellow and Chartered Professional of The Australasian Institute of Mining and Metallurgy (AusIMM). Mr Willis has sufficient experience which is relevant to metal recovery from the style of mineralisation and type of deposits in New Caledonia where the ore will be sourced (from third parties pursuant to an ore supply agreement) and to the activity which they are undertaking to qualify as a Competent Person under the 2012 Edition of the 'Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves'. This includes over 21 years of experience in metal recovery from Laterite ores. Mr Willis consents to the inclusion of the technical data in the form and context in which it appears.

Forward Looking Statement

This Announcement contains certain forward-looking statements with respect to the financial condition, results of operations, and business of the Company, and certain plans and objects of the management of the Company. These forward-looking statements involved known and unknown risks, uncertainties and other factors which are subject to change without notice, and may involve significant elements of subjective judgement and assumptions as to future events which may or may not occur. Forward-looking statements are provided as a general guide only and there can be no assurance that actual outcomes will not differ materially from these statements. Neither the Company or its directors, QPM or its directors, nor any other person, gives any representation, warranty, assurance or guarantee that the occurrence of the events expressed or implied in any forward-looking statement will actually occur. In particular, those forward-looking statements are subject to uncertainties and contingencies, many of which are outside of the control of the Company. A number of important factors could cause actual results or performance to differ materially from the forward-looking statements. Accordingly, Investors should consider the forward-looking statements contained in this Announcement in light of these disclosures.



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

Name of entity

Pure Minerals Limited

ABN

61 125 368 658

Quarter ended ("current quarter")

31 December 2019

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (6 months) \$A'000
1.	Cash flows from operating activities		
1.1	Receipts from customers	-	-
1.2	Payments for		
	(a) exploration & evaluation	(578)	(830)
	(b) development	-	-
	(c) production	-	-
	(d) staff costs	(62)	(126)
	(e) administration and corporate costs	(295)	(692)
1.3	Dividends received (see note 3)	-	-
1.4	Interest received	2	4
1.5	Interest and other costs of finance paid	-	-
1.6	Income taxes paid	-	-
1.7	Research and development refunds	-	-
1.8	Other – Settlement Costs	-	-
1.9	Net cash from / (used in) operating activities	(943)	(1,654)
1.2(e)	Administration and corporate costs include certain one-off costs such as legal fees and ASX fees incurred in connection with the Company re-complying with Chapters 1 and 2 and re-listing on ASX.		
2.	Cash flows from investing activities		
2.1	Payments to acquire:		
	(a) property, plant and equipment		
	(b) tenements (see item 10)	-	-

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Mining exploration entity and oil and gas exploration entity quarterly report

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (6 months) \$A'000
(c) investments	-	-
(d) other non-current assets	-	-
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	-	-
2.4 Dividends received (see note 3)	-	-
2.5 Other (provide details if material)	-	*(372)
2.6 Net cash from / (used in) investing activities	-	(372)

*Part of the consideration paid for the Queensland Pacific Metals Pty Ltd acquisition.

3. Cash flows from financing activities		
3.1 Proceeds from issues of shares	-	622
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	-	(167)
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 (proceeds from unissued shares)	-	-
3.10 Net cash from / (used in) financing activities	-	455
3.4		

4. Net increase / (decrease) in cash and cash equivalents for the period		
4.1 Cash and cash equivalents at beginning of period	2,063	2,691,
4.2 Net cash from / (used in) operating activities (item 1.9 above)	(943)	(1,654)
4.3 Net cash from / (used in) investing activities (item 2.6 above)	-	(372)
4.4 Net cash from / (used in) financing activities (item 3.10 above)	-	455

+ See chapter 19 for defined terms

Mining exploration entity and oil and gas exploration entity quarterly report

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	-	-
4.6	Cash and cash equivalents at end of period	1,120	1,120

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	1,120	2,063
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)	1,120	2,063

6. Payments to directors of the entity and their associates

- 6.1 Aggregate amount of payments to these parties included in item 1.2
- 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

Current quarter
\$A'000

(56)

-

Explanation necessary for an understanding of the transactions

- 6.1 Director and consulting fees paid to Directors and/or Director related entities \$55,500

7. Payments to related entities of the entity and their associates

- 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

Current quarter
\$A'000

-

-

Mining exploration entity and oil and gas exploration entity quarterly report

8. Financing facilities available <i>Add notes as necessary for an understanding of the position</i>	Total facility amount at quarter end \$A'000	Amount drawn at quarter end \$A'000
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.		

Nil.

9. Estimated cash outflows for next quarter	\$A'000
9.1 Exploration and evaluation	(328)
9.2 Development	-
9.3 Production	-
9.4 Staff costs	(62)
9.5 Administration and corporate costs	(239)
9.6 Other (provide details if material)	-
9.7 Total estimated cash outflows	(629)

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 2020

Print name: Mauro Piccini

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.