For personal use only

Pure Minerals Limited

ASX ANNOUNCEMENT **30 July 2018**

Quarterly Activities and Cashflow Report
for quarter ending 30 June 2018

Pure Minerals Limited (**the Company**, **Pure Minerals** or **PM1**) provides the following update on its activities during the quarter ending 31 March 2018 (**Relevant Quarter**).

Project Activities

Battery Hub Project (100% PM1) - E09/2217 and E52/3523

During the Relevant Quarter Pure Minerals announced preliminary metallurgical testwork for the Battery Hub manganese project, located in Western Australia's Gascoyne region. In addition, it announced assay results from a previously-unrecognised cobalt by-product.

The objectives of the testwork were to (a) determine whether the medium-grade manganese mineralisation can beneficiate to a marketable grade for steel industry consumption, and (b) determine whether the mineralisation appears amenable to leaching and the production of high-purity manganese sulphate, electrolytic manganese dioxide (EMD) and electrolytic manganese metal (EMM).

In order to do this, Pure Minerals engaged METS Engineering ("METS") to design a proof-of-concept flowsheet that entailed crushing and screening, mineralogical testwork using QEMSCAN analysis, heavy liquid separation and magnetic separation. Testwork was conducted by ALS Global laboratories, located in Western Australia, and supervised by METS.

Composite Sample Assays Identify Cobalt

The two main types of intermediate-grade mineralisation identified at Battery Hub with composite samples derived from multiple reverse circulation drill holes:

1) **Detrital/lateritic** mineralisation sourced from the **Julia** prospect. Detrital mineralisation occurs in localised areas thought the Battery Hub project; and

2) **Stratiform** mineralization sourced from the **Pools** prospect. Stratiform mineralisation over the entire >50km strike length of Battery Hub.

Pure Minerals Limited (A.C.N: 125 368 658)
Address: 1/1 Altona Street West Perth WA 6005
E: info@pureminerals.com.au W: www.pureminerals.com.au

For personal use only

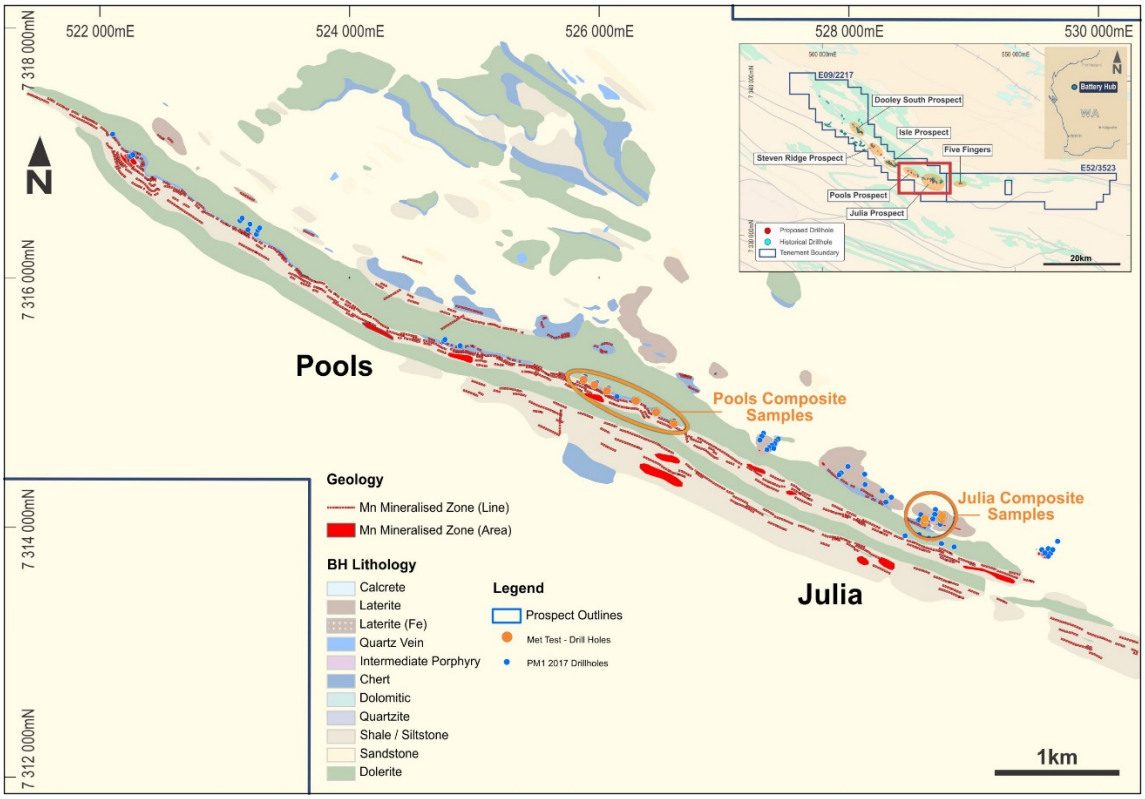


Figure 1: Location of metallurgical samples from Julia prospect (five holes) and Pools (six holes)

The actual assayed grades correlated well with the expected composite grades from the drilling, with the Julia composite grading 10.8% Mn and the Pools sample grading 11.1% Mn. The Julia composite was noticeably higher in iron and aluminium compared to the Pools composite, although much lower in silica. Of note, the cobalt by-product content was anomalously high in both samples, with grades of 0.03% Co and 0.02% Co at Julia and Pools, respectively.

Mineralogical Testwork Identifies Leaching Potential

QEMSCAN analysis indicated a complex manganese mineralogy. However, a large portion of the manganese mineralisation appears to derive from potassium associations, and likely cryptomelane.

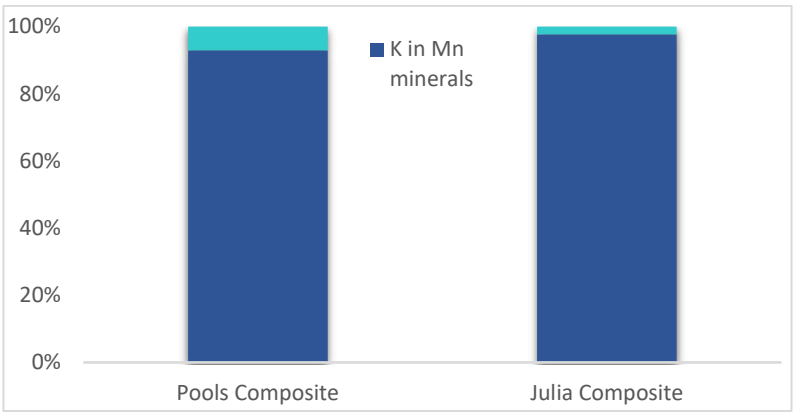


Figure 2: QEMSCAN potassium deportment analysis. The majority of potassium deports to manganese minerals.

For personal use only

Most significantly, the mineralogy would appear to be conducive to leaching. Oxide-style manganese ores normally leach well, especially when the manganese minerals have low silica and aluminium associations, as the Battery Hub samples do. In addition, METS believes that cryptomelane, the potassium substitution mineral which is present in both the Pools and Julia samples, can actually open the structure and increase leach kinetics.

Furthermore, the rock was low in carbonate and clay minerals, suggesting efficient acid digestion of the rock.

QEMSCAN analysis could not identify any specific cobalt mineral; however, it is correlated with manganese grades and we believe it has likely formed surface precipitates/coatings on the manganese minerals.

Given the potential for leaching and the identification of a significant cobalt credit, the hydrometallurgical extraction of high-value, high-purity products such as manganese sulphate, electrolytic manganese dioxide (EMD), electrolytic manganese metal (EMM) and cobalt is now an opportunity Pure Minerals believes should be pursued aggressively.

METS Engineering believes that the Battery Hub mineralisation may be amenable to whole ore leaching, and testwork on similar lower-grade ores elsewhere in the world has exhibited very good results. However, more testwork needs to be undertaken to better understand this option.

Heavy Liquid Separation and Magnetic Separation Testwork

Heavy Liquid Separation testwork was undertaken to test the composite samples propensity to beneficiate to a marketable concentrate. The testwork revealed the following results for each composite sample:

- **Julia (detrital)** achieved a combined manganese grade of 16.69% Mn with a 63.8% recovery.

- **Pools (stratiform)** achieved an overall manganese grade of 26.13% Mn with a 56.8% recovery.

The Pools composite sample achieved a higher grade and degree of beneficiation due to the lower iron content. Iron is the main gangue mineral in the concentrates and is contributing most to the dilution of manganese grade. Magnetic separation testwork revealed that, unlike the conclusions of the QEMSCAN analysis, iron is closely associated with manganese and therefore magnetic separation was unsuccessful in increasing grade.

METS and Pure Minerals modelled the results to determine what minimum primary manganese grade is required to upgrade, using only density separation, to a quality that may be marketable (more than 32% Mn). Modelling suggests a detrital (Julia) grade of 20.0% Mn is required to achieve such a grade. However, for Pools (stratiform mineralisation) the required grade is much lower with a primary grade of 14.4% Mn required.

Cobalt was not a focus of the beneficiation testwork and more conclusive testwork is required; however, it still beneficiated alongside the manganese content, especially in the

Pools composite sample. The cobalt grade was 0.033% Co in the Julia 3.4 S.G. sinks at 39.6% recovery. For the Pools the cobalt grade was 0.039% Co at 44.8% recovery in the 3.4 S.G. sinks.

Extensive Cobalt Mineralisation Identified in Drilling

Given metallurgical testwork detected anomalously high grades of cobalt in the composite samples submitted (0.03% at Julia and 0.02% Co at Pools) and attractive beneficiation ratios, Pure Minerals re-assayed the entirety of its most recent drilling campaign (79 RC drill holes) for cobalt mineralisation.

A review of drilling results identified the following highlights:

Isle
BH0079: 12m @ 0.068% Co and 18.42% Mn,
incl. 4m @ 0.114% Co and 33.39% Mn
BH0077: 6m @ 0.071% Co and 11.61% Mn

Julia
BH0002: 15m @ 0.027% Co and 8.59% Mn
incl. 3m @ 0.066% Co and 19.88% Mn
BH0006: 9m @ 0.037% Co and 10.93% Mn
BH0015: 12m @ 0.031% Co and 10.74% Mn
BH0021: 5m @ 0.042% Co and 16.80% Mn

Pools
BH0045: 2m @ 0.051% Co and 26.43% Mn
BH0046: 9m @ 0.024% Co and 14.47% Mn
incl. 2m @ 0.055% Co and 31.90% Mn

Steven Ridge
BH0068: 9m @ 0.032% Co and 17.92% Mn
incl. 3m @ 0.068% Co and 31.79% Mn

Of significance, cobalt by-product mineralisation was observed in the majority of drill holes and throughout the entire project area (see map below). Select cobalt by-product intervals at Isle, which was not sampled from metallurgical testwork, even exceeded the resource grades of many primary cobalt projects.

For personal use only

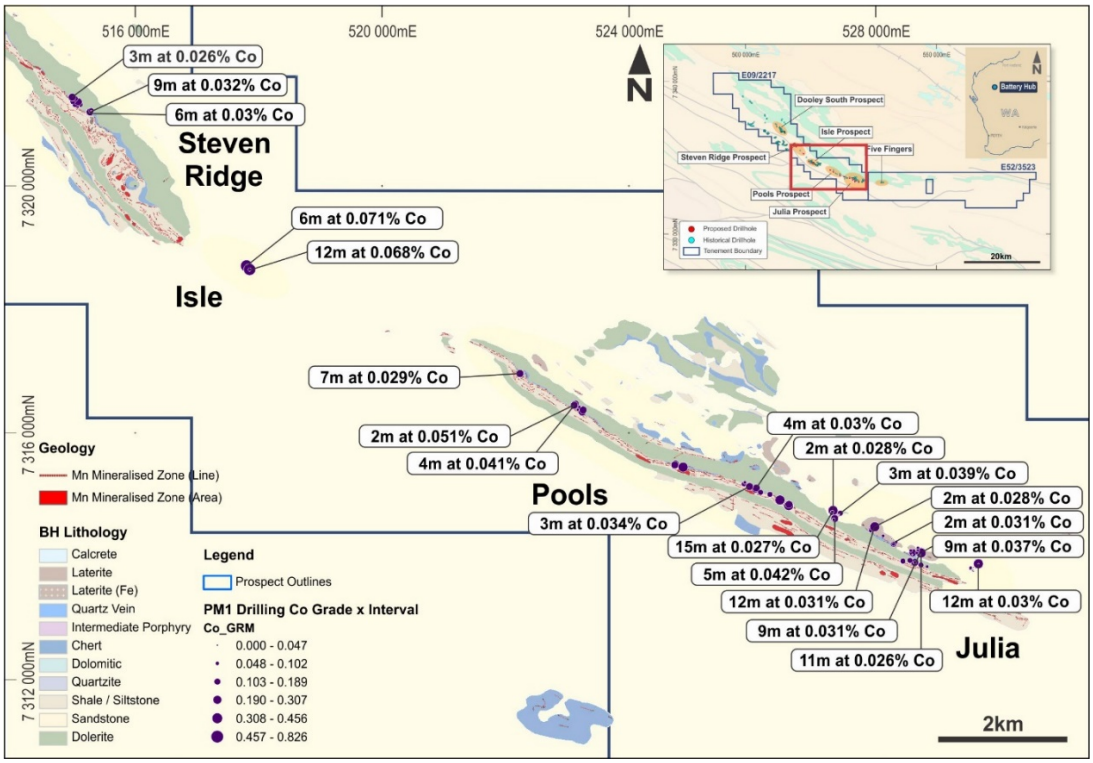


Figure 3: Select cobalt by-product intercepts identified in drilling. For all results, see company announcement dated 12 June, 2018

Revised Exploration Strategy

The company's strategy of suspending resource drilling until metallurgical testwork was completed has enabled a far more efficient use of exploration capital going forward. Testwork has increased the attractiveness of developing resources that can be leached to high-purity battery metals.

In addition, lower-iron, high-silica stratiform mineralization can be targeted for its ability to beneficiate to marketable concentrate for use in steel making. Pure Minerals has screened the entire database of rock chips and drilling samples at Battery Hub for obvious areas of known thick stratiform manganese mineralisation with lower than average iron-to-silica ratios.

Priority targets have been identified along the entire >70km strike length between the Bluffs prospect and the Five Fingers/Syndicate prospect (illustrated below).

For personal use only

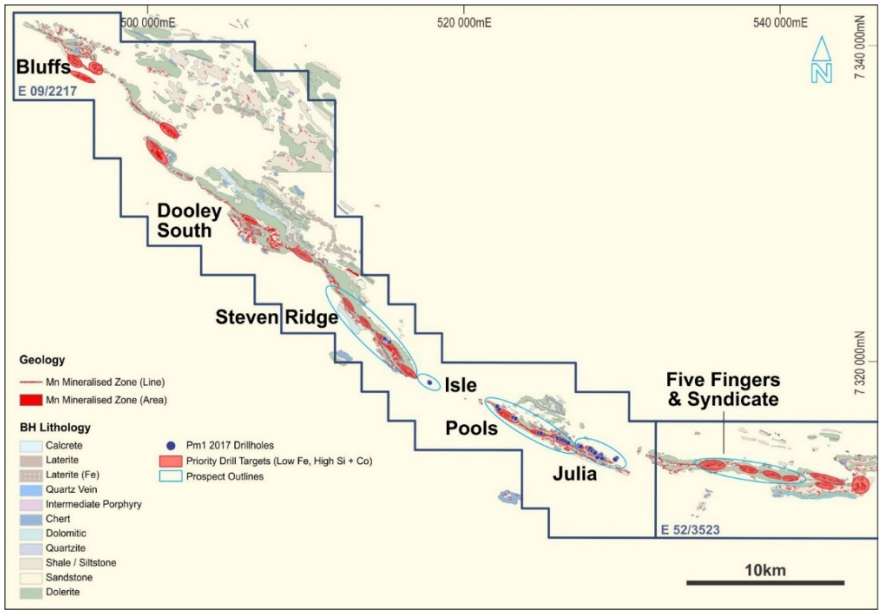


Figure 4: Identified areas of low Fe, high silica (and high cobalt) within zones of known manganese mineralisation.

Pure Minerals will continue to assess on the leachability of manganese and cobalt of the different ore types at Battery Hub. This will involve initial proof-of-concept leach tests in order to gauge the maximum manganese and cobalt extraction. Additional work will focus on optimising reagent consumption and assess low cost hydrometallurgical routes.

Morrissey Hill (80% PM1) – E09/2136 and E09/2133

During the Relevant Quarter Pure Minerals announced the results from infill soil sampling at its 80%-owned Morrissey Hill project located in Western Australia's Gascoyne region.

The objective was to improve the resolution of a large (5 km long by 1 km wide) anomaly that was previously announced on 5th October 2017.

The soil survey consisted of 1,114 samples over a 200m x 50m grid that infilled and extended the previous program of 133 samples collected on an 800m x 200m grid. A minus 80 mesh fraction was also trialed to improve the resolution of the anomalous area. All samples were then subjected to analysis using a portable XRF analyser, from this a further 507 samples were prioritised for further analysis, including analysis for Lithium in Perth.

The 59 km^2 Morrissey Hill project is known to host multiple pegmatite intrusions and fractionated granites which have the potential to host lithium mineralisation. The soil sampling program was designed to identify lithological packages with anomalous pathfinder elements for lithium-caesium-tantalum pegmatites (Li, Cs, Ta, Nb, Rb) which may indicate sub-cropping prospective pegmatites.

The program successfully delineated and defined two high priority lithium and tantalum anomaly areas (see Figure 5), including:

(1) a 2.1km x 1.1km lithium and tantalum soil anomaly, with results up to 474 ppm Li_2O and 28 ppm Ta_2O_5, and

For personal use only

(2) a smaller tantalum-rich soil anomaly of 0.7km x 0.2km with results up to 19 ppm Ta_2O_5

Both anomalies may reflect one contiguous zone of mineralisation overlain by a SW-NE-trending drainage channel that has split the anomalies into two.

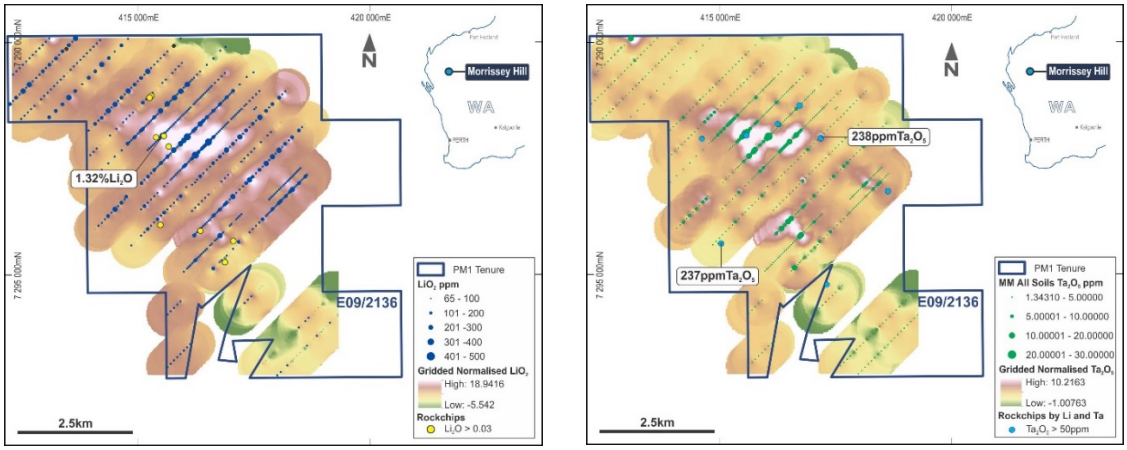


Figure 5: Soil anomalies of lithium (left) and tantalum (right), along with corresponding rock chip sampling results. A lithium-tantalum soil anomaly near the centre of the tenement is clearly evident, plus a smaller more tantalum-rich anomaly located 2km to the south of the main anomaly.

The z-score analysis indicates a far broader anomaly which is interpreted to be extending more than 5km long and 1.5km wide that has been truncated by SW-NE trending drainage.

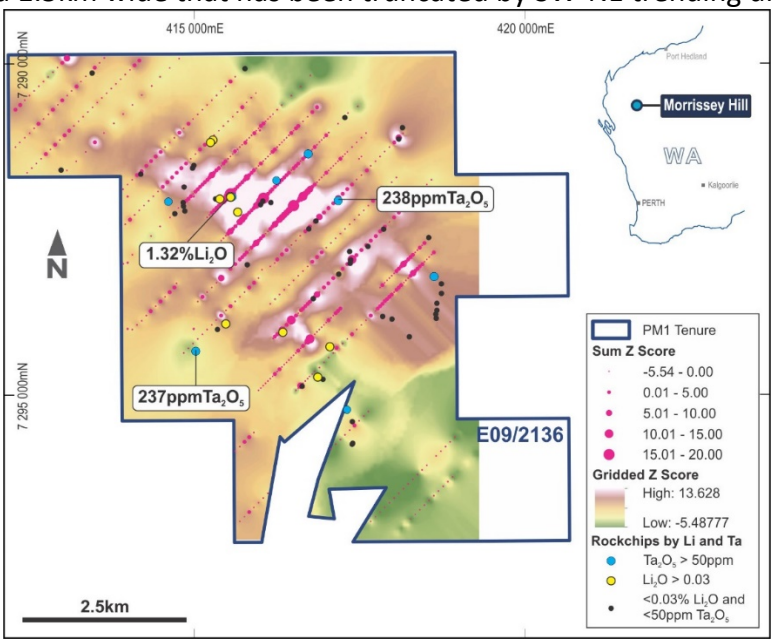


Figure 6: Soil anomalies, soil sampling locations showing multivariate Z-score (Li, Ta, Cs, Rb, Nb), and highlighted rock chip samples.

The soil anomalies are consistent with lithium and tantalum rock chip samples collected on site. Previous rock chip samples in the northern Li-Ta anomaly registered grades up to 1.31% Li_2O and 238.7ppm Ta_2O_5 (refer ASX Announcement/Prospectus dated 5 May 2017 and the ASX Announcement dated 5 October 2017).

Having successfully defined high-priority lithium-tantalum soil anomalies, Pure Minerals believes that a targeted program of drilling testwork is warranted and has begun planning to that effect.

Mount Boggola (80% PM1) – E08/2693

For personal use only

No exploration activities were undertaken during the Relevant Quarter.

Bordah Well (80% PM1) – E09/2132

Pure Minerals surrendered the property during the Relevant Quarter. No exploration activities were undertaken during the Relevant Quarter.

Regnard Bay (100% PM1) – E47/3919

At quarter end the tenement remained pending grant. A hearing to address any objections was deferred to the September quarter. The Company expects the objections to be resolved satisfactorily.

Corporate and post-record date Events

During the Relevant Quarter, Pure Minerals raised $700,000 (A$618,000 net of capital raising fees). The raising was priced at $0.015 per share. Each issued share included one attached listed option with an exercise price of $0.03 and expiring December 2019.

At 30 June 2018, the Company's cash position was approximately $2.8 million.

On 9 July, the Company announced the entry into a binding agreement with Legend Minerals LLC in relation to cobalt, lead and zinc prospective ground in Missouri.

For more details about Pure Minerals Limited see www.pureminerals.com.au

For personal use only

Tenement Table: ASX Listing Rule 5.3.3

Mineral tenement interests held at the end of the quarter

Tenement	Status	Project	Holding	Grant Date	End Date	Prospective for
E08/2693	Granted	Mt Boggola, WA	80%	29/09/2015	28/09/2020	Copper-gold
E09/2132	Granted	Bordah Well, WA	80%	01/07/2016	30/06/2021	Gold-copper, REE, Uranium
E09/2133	Granted	Morrissey Hill, WA	80%	20/07/2016	19/07/2021	Lithium, Tantalum & REE
E09/2136-I	Granted	Morrissey Hill, WA	80%	20/07/2016	19/07/2021	Lithium, Tantalum & REE
E09/2217	Granted	Battery Hub, WA	100%	13/09/2017	12/09/2022	Manganese
E52/3523	Granted	Battery Hub, WA	100%	06/11/2017	05/11/2022	Manganese
E47/3919	Application	Regnard Bay , WA	100%			Heavy Mineral Sands, Gold, Industrial Minerals

The mining tenement interests relinquished or surrendered during the quarter and their location

E09/2132, Bordah Well, Western Australia

The mining tenement interests acquired during the quarter and their location

Nil

Beneficial percentage interests held in farm-in or farm-out agreements at the end of the quarter

Not applicable.

Beneficial percentage interests in farm-in or farm-out agreements acquired or disposed of during the quarter

Not applicable.

For personal use only