# Minerals

**Investor Presentation** 

October 2018

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Mr David Williams, a member of the Australian Institute of Geoscientists, is a part-time employee of CSA Global Pty Ltd and is a Qualified Person as defined in National Instrument 43-101. Mr Williams has reviewed and approved the technical information in relation to the Iron Ore Projects contained in this Presentation.

Mr Andrew Hawker, a member of the Australian Institute of Geoscientists, is a full-time employee of Hawker Geological Services Pty Ltd and is a Qualified Person as defined in National Instrument 43-101. Mr Hawker has reviewed and approved the technical information in relation to the gold acreage contained in this Presentation.

Mr Randy Henkle, a Registered Member of the Society of Mining and Exploration and a Professional Geologist licensed in British Columbia, Canada, is a Qualified Person as defined in National Instrument 43-101. Mr Henkle has reviewed and approved the technical information in relation to the Nevada, USA Project contained in this Presentation.

## Exploration Company for Gold, Lithium & Iron Ore

Macarthur Minerals Limited (TSX-V: MMS) is focused on:

- Bringing to commercialisation the advanced iron ore projects in Western Australia;
- Exploration of **gold projects in Western Australia;** and
- Exploration of high grade lithium projects in Western Australia and Nevada.
- Australian (Brisbane) based company listed on TSX-V for over 10 years
- Historically focused on single commodity iron ore, but diversified into lithium and gold
- Strong management team with significant exploration and development experience
- Cadence Minerals Plc (AIM: KDNC) major shareholder ~13%



## Board of Directors and Management



#### Cameron McCall Executive Chairman

40 year career providing investment advice, equity capital raising and share trading to corporate entities and private clients at Hartleys Ltd and Macquarie Bank Ltd.



#### Joe Phillips Joint CEO & Director

Previously the Company's CEO in 2015 and was responsible for the original funding, exploration and development of the Company's iron ore assets.



#### Alan Phillips *Non-Executive Director*

Director of the Company since October 2005. 40 years experience in corporate and international mining.



#### David Lenigas Non-Executive Director

Is a Mining Engineer and was formerly the Executive Chairman of Cadence Minerals Plc (AIM: KDNC), the Company's largest shareholder. David is Executive Chairman of several London and ASX listed companies, including Artemis Resources Limited (ASX: ARV).



#### Earl Evans Non-Executive Director

23 year career within the financial services industry, formerly Executive Director with the Macquarie Group Ltd. Currently a Co-CEO of Shaw Stockbroking.



#### **Technical Team**



#### Dean Carter GM Projects

17 years' experience in environmental research and managing the regulatory approval of mining and infrastructure projects across various commodities. Dean was previously involved in the approval and construction of Mount Gibson Mining's Extension Hill iron ore project and has been involved in projects from exploration through to construction and production

Dr Carter holds a Bachelor of Science (Hons1) and a Doctor of Philosophy (PhD).



#### Susy Carrigan Tenement Geologist

7 years' experience in the mining industry with early involvement in various greenfield exploration projects in WA across commodities including iron ore, lithium and base metals. Susy holds a Bachelor of Science in Geographical and Earth Sciences and is a member of the Australian Institute of Geoscientists.

## Iron Ore Projects

Western Australia



Macarthur Minerals (TSX-V:MMS)



## Ularring Hematite & Moonshine Magnetite Projects



100% owned by Macarthur Australia Limited.

Granted Mining Leases covering 62 km<sup>2</sup>, 175 km northwest of Kalgoorlie, Western Australia

The Ularring Hematite Project:

- Previously reported Indicated and Inferred Mineral Resources
- PFS Completed 2012 / Beneficiated material model
- Environmental approvals received

The Moonshine Magnetite Project:

- Previously reported Inferred Mineral Resource
- PEA completed

#### Over A\$61m invested to date

High grade low impurity iron ore is the future of this commodity market

## Treppo Grande Iron Ore Project



The distribution of Fe-rich BIF and detrital ironstone at the J-Hook prospect determined by surface rock chip sampling

- Treppo Grande Iron Ore Project (E77/2521) covers an area of 68 km<sup>2</sup> and is located ~32 km west of Ularring and 35 km east of Cliffs' Windarling operation and haul road.
- Explored for high grade hematite iron ore mineralisation and identified 3 potentially economic styles of Direct Shipping Ore ("DSO") mineralisation including massive dense hematitic ironstones, specular hematite and oxidised 'Indurated Detrital Ironstone'.
- Significant intercepts include 17.5m @ 65.49% Fe from 2.5m from hole MMS002 and 40.4m @ 55.77% Fe from 3.6 m from hole MMS001
- Three new iron ore exploration areas were applied for adding an additional 113 km<sup>2</sup>
- Two of these tenements are adjacent to the Mt Jackson and Deception iron ore deposits of Cleveland-Cliffs Inc.
- The third area is located 35 km west of Macarthur's Ularring Hematite Project.



## Port of Esperance

- Railway to Port leased by Brookfield Rail
- Port owned by Western Australian Government
- Exporting ~11Mtpa of iron ore fines and lump annually
- Available third party export
- Iron ore unloading circuit owned by another iron ore producer



Note: Assets shown are owned by the WA Sate Government and not the Company. Macarthur Minerals (TSX-V:MMS)



#### Cobalt & Nickel at Lake Giles

- Drilling for iron at Lake Giles has identified upper horizons of a channel flow of a potential komatiite structure. Komatiites can host nickel sulphide mineralisation.
- Wide intersections at the base of drill-holes have identified grades in excess of 0.2% cobalt, 0.7% nickel and 1% chromium
- Several deep diamond and RC holes have intersected zones of massive sulphide or anomalous nickel e.g. LGRC018 – 103m @ 0.16% Ni from 77m and 23m @ 0.17% Ni from 235m
- Ground MLEM and FLEM surveys were conducted
- Two strong conductors at Moonshine North and a broad bedrock conductor at Snark
- An initial program of two holes drilled to a depth of 200 m commenced



Sample containing cobaltite collected at Snark prospect at Lake Giles 2.68% Co, 2.01% Ni

#### Cobalt & Nickel at Lake Giles

- Massive sulphide intersection from 204m deep at the Moonshine Deposit at Lake Giles
- MLEM and FLEM surveys complete and analysing areas for follow-up drilling





MLEM survey at Moonshine showing modelled conductors. Background image shows magnetic anomalies.

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### MLEM Survey at Lake Giles



MLEM Survey at Snark showing modelled conductors. Background shows Total Magnetic Intensity anomalies



Western Australia





### Conglomerate Gold in the Pilbara



#### Conglomerate Gold in the Eastern Pilbara



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#### Artemis Earn-in Conglomerate Gold

Artemis Resources Limited (ASX:ARV) to earn-in up to 80% interest in two tenements covering a total of 265km<sup>2</sup>, located in Pilbara for A\$2 million.

The tenements have been mapped by the Geological Survey of Western Australia (GSWA) with Mt Roe Basalt covering a significant portion of the tenements.

The target for the conglomerate gold prospective horizon is below the Mt Roe Basalt.

Macarthur also holds the Bonnie Scot tenement, which sits adjacent to the two tenements subject to earn-in.

Next Steps - Artemis undertaking regional review:

- Site visit 2<sup>nd</sup> round complete
- Mapping/sampling
- Ground geophysics



## Pilbara Gold & Copper

Macarthur's three exploration licences are located approximately 185 km South East of Port Hedland and 50 km South West of Marble Bar

Historic surface rock samples recorded up to 240 grams per tonne gold and copper up to 7.8%

Acquired adjoining tenement – 700 oz of gold previously extracted by prospectors

#### Next Steps:

- Field work including mapping and sampling the tenements for gold, copper and lithium - Completed
- Ground Geophysics Completed
- Drill target generation around old historic mine workings -Underway



#### Hillside Gold Project



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### Hillside Gold Project



- 18 high priority bedrock conductors identified from its recent heliborne SkyTEM electromagnetic survey, including two isolated discrete bedrock conductors
- Data was captured across two disjunct areas; Area 1 in the north covering 76 km<sup>2</sup> and Area 2 in the south covering 51 km<sup>2</sup>.
- Geological mapping and geochemical sampling will be undertaken across these target areas, followed by drilling of select targets.

#### Pilbara Tenure Area vs. Market Cap



As at June 2018

## Lithium – Hard rock

Western Australia





Pilbara Lithium Projects Location

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## Pilbara Lithium Projects



Pilbara Minerals Limited ASX Announcement, Jun 29, 2017
Pilbara Minerals Limited ASX Announcement, Dec 1, 2016
Altura Mining Limited ASX Announcement, 24 Oct, 2017
Altura Mining Limited ASX Announcement, 26 Sept, 2016

15 exploration licences and 1 exploration license application covering ~1,300 km<sup>2</sup> in world class Pilbara area prospective for 'hard rock' lithium

#### Neighbours:

- Pilbara Minerals Limited (ASX:PLS)
  - Market Capitalisation of \$1.55 billion
  - JORC Mineral Reserve Estimate of 80.3Mt @1.27% Li<sub>2</sub>O<sup>1</sup>
  - Definitive Feasibility Study: NPV of A\$709m and IRR of 38.1%<sup>2</sup>
- Altura Mining Limited (ASX: AJM)
  - Market Capitalisation of \$690 million
  - JORC Mineral Reserve Estimate of 34.2 Mt@1.04% Li<sub>2</sub>O<sup>3</sup>
  - Definitive Feasibility Study: NPV of \$411m and IRR of 58%<sup>4</sup>

#### Pilbara Heli-borne Reconnaissance



Reconnaissance located pegmatites that contain visually identified minerals indicative of rare element Lithium-Caesium-Tantalum (LCT) pegmatites

Assay results of pegmatites are encouraging - confirmed presence of moderately to strongly fractionated rare element pegmatites within three of the application areas

Next steps - Ground survey and sampling work. Review of geophysics to develop exploration targets

Macarthur is seeking a strong joint venture partner to work with this tenement portfolio to advance understanding of the resource potential.



## Lithium - Brine

Nevada







## Nevada Project





## Reynolds Springs Project – 405 ppm Li



210 new unpatented placer mining claims at Reynolds Springs Lithium Brine Project

Located in the Railroad Valley approximately 180 miles north of Las Vegas and 330 miles southeast of Tesla's Gigafactory

Railroad Valley has emerged as potentially the largest brine deposit in Nevada - more than six times the area of Clayton Valley

Numerous thermal springs emerge along the basin bounding fault systems

Assayed 206 soil samples for lithium that were collected across the full extent of the claims

Analysis of geochemical soil sampling found up to 405 ppm lithium

Strategic alliance with <u>3PL</u> Operating Inc for exploration of Reynolds Springs Lithium Brine Project

Macarthur Minerals (TSX-V:MMS)



## **Railroad Valley**

17 historical oil and gas wells located on or adjacent to the Reynolds Springs Project

Well logs containing geological sequences and down hole geophysics such as resistivity measurements have been reviewed

Zones of high conductivity have been identified from resistivity logs and interpreted as potential brine aquifers.

Rail Road Valley basin has capacity to obtain water rights unlike the over allocated Clayton Valley

#### Next steps:

- Seeking JV partners to earn-in
- Completed logging of existing wells and obtain drilling permits to re-enter wells
- Application for water rights completed (current application less than 50%)
- Testing of well core underway



## **Railroad Valley**

Zones of high conductivity have been identified from resistivity logs and interpreted as potential brine aquifers (as shown as C-1, C-2, etc. on the image)

#### Next steps:

• Obtain drilling permits to re-enter old wells and drill to target zones to sample potential brine



## Next Steps





#### Next Steps Macarthur's strategy

Joint Venture/Transaction opportunities for gold and Lithium

Extensive sampling, mapping and geophysics program for Pilbara Projects to confirm the extent of gold and lithium mineralization and identify drill targets

JV/Earn-in opportunities for US Reynold Springs Project to conduct further exploration

Regional development options for the iron ore assets as they return to value with recovery of the global iron ore market





## Appendix



#### **Share Metrics**

Major Shareholders (%)				
Cadence Minerals Plc	~12%			
Management and Insiders	~7%			
% of Top 20	~48%			

#### 52-Week Range (C\$0.025 - C\$0.10)



Macarthur Minerals (TSXV: MMS) (As of 16 Oct 2018)				
Share Price	C\$0.03			
Market Capitalization	C\$7.7m			
Ordinary Shares	256.5m			
Warrants^	45.9m			
Options^ ^	21.8m			
RSUs^^^	5.5m			
Fully Diluted Shares	329.7m			

^ 31.7m warrants with an exercise price of C\$0.20 expires 15 Dec 2018 and 14.2 m warrants with an exercise price of C\$0.10 expires 24 Sept 2019

^^ Option average exercise price C\$0.05, expire 3 Apr 2019– 20 Feb 2021 ^^^ Restricted Share Units, issued pursuant to the Share Compensation Plan vest in the event the Company's share price is C\$0.20 for 20 consecutive trading days.

### Iron Ore Mineral Resources

#### Ularring Hematite Mineral Resources (40% Fe Cut-off)<sup>1</sup>

Category	M Tonnes	Fe %	P %	SiO <sub>2</sub> %	Al <sub>2</sub> O <sub>3</sub> %	LOI %	S %
Indicated	54.46	47.2	0.06	16.9	6.5	7.9	0.16
Inferred	25.99	45.4	0.06	20.6	6.0	7.2	0.09

#### **Moonshine Magnetite Inferred Mineral Resources**<sup>2</sup>

Deposit	M Tonnes	Fe %
Snark	75	27.7
Clark Hill North	130	25.8
Sandalwood	335	31.1
Clark Hill South	66	30.3
Moonshine	710	30.6
TOTAL	1,316	30.1

<sup>1</sup> The Ularring Hematite Project's Mineral Resource was previously announced on August 16, 2012 (NI 43-101 Technical Report filed October 1, 2012, titled "NI 43-101 Technical Report, Macarthur Minerals Limited, Pre-Feasibility Study, Ularring Hematite Project, Western Australia"). **Note**: The mineral resource was estimated within constraining wireframe solids encapsulating BIF strata. The resource is quoted from blocks above 40% Fe cut-off grade, except Moonshine where resource is quoted from blocks above 50 % Fe. Differences may occur due to rounding. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability. Refer to the 2012 PFS for more information.

<sup>2</sup> The Inferred Mineral Resource estimate for the Moonshine Magnetite Project was initially prepared by CSA Global Pty Ltd (NI43-101 Technical Report filed December 17, 2009, titled "*NI43-101 Technical Report on Lake Giles Iron Ore Project: Western Australia*") and was updated by Snowden Mining Industry Consultants (NI43-101 Technical Report filed March 25, 2011, titled "*Macarthur Minerals Limited: Moonshine and Moonshine North Prospects, Lake Giles Iron Project, Western Australia, NI43-101 Technical Report – Preliminary Assessment*") **Note**: Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.

# Minerals

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