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### Food Security - A Mega-Trend That Will Shape Our Region



The Food and Agriculture Organization of the United Nations forecasts that by 2050, 60 to 70 percent more food will be required to meet demand resulting from population growth and income growth

CSIRO Data 61 Insight Team, 7 Megatrends Reshaping Our Region

Arable land per capita is likely to fall by almost one quarter between 2000 and 2030 while demand for food will increase by one half.

As a result, the demands of food supply must be met through higher yields from existing arable land, putting more strain on soils.

Greater application of nutrients in the form of mineral and chemical fertilisers, will be a key means of achieving the necessary yields

BHP Media Release July 2017

### **Highlights**



- Focussed on developing its 100% owned long life, low cost Ammaroo phosphate project:
  - Australia's largest phosphate JORC resource
  - Low calcium carbonates reduces acid consumption and gypsum production in a phosphoric acid plant combined with ultra low cadmium
  - low strip ratio, low cost mining operation
  - located in Northern Territory of Australia close to underutilised rail, road and gas infrastructure
  - Advantaged access to key Asian markets through the port of Darwin
  - Granted major project status by the Northern Territory Government
  - Cleared for due diligence by the Federal Government's Northern Australia Infrastructure Development Fund
- Bankable Feasibility Study (BFS) for the production of 2 million tonnes per annum of phosphate rock concentrate underway. Expected completion during Q1 2018
- Draft Environmental Impact statement submitted to the Northern Territory EPA. Expect Minister signoff Q1 2018
- Phosphate prices on the rise. Downstream phosphate fertilisers have risen by 15-20% over last few months
- The company has a portfolio of Sulphate of Potash projects to round out Verdant Minerals' portfolio of fertiliser mineral projects. Karinga Lakes Projects under a joint venture with Aqua Guardian Group that is developing a unique and lower cost method of producing SOP

# **Key Activities**



Over the last 12 months we have been focussed on the following:

		<b>Current Status</b>
1	Taking the Ammaroo Project to a bankable level of feasibility	Progressing
2	Drilling to extend the amount of measured and indicated resource at Ammaroo	Complete
3	Attaining a social licence to operate	Progressing
4	Negotiating a native title agreement to facilitate granting of mineral leases	Progressing
5	Marketing the Project to secure financing and offtake	Progressing
6	Seeking interest from industry and technology providers for the SOP portfolio	JV in place
7	Continuing to evaluate the potential of Dingo Hole Silica for HPQ	Progressing



# **Ammaroo Phosphate Project**



# **Update on Environmental Approvals, BFS and Marketing Activities**



- The Draft Environmental Impact Statement (EIS) was submitted. The public comment and Northern Territory Government review period remains open until 8 December 2017. See Draft EIS at <a href="https://www.ntepa.nt.gov.au/envirocomment">www.ntepa.nt.gov.au/envirocomment</a>
- The bulk beneficiation pilot has been completed demonstrating the production of a high-quality rock concentrate containing 33.2%  $P_2O_5$  with a minor elements ratio of 0.075% and ultra-low cadmium
- Five regional importers of phosphate rock have received, or are in the process of receiving, samples of Ammaroo phosphate concentrate to allow them to conduct internal assessments and testing of the concentrate as feed for their existing phosphoric acid plants and single super phosphate production facilities. Discussions continue with a number of other regional rock buyers as the company continues to work towards establishing off take agreements
- Detailed engineering design of the process plant and associated infrastructure is 30% complete, and the rail spur preliminary design has been completed
- Term sheets with rail and port capacity providers are under negotiation
- Discussion with the NT Government regarding a project development agreement are underway
- Draft Native Title Agreement is currently under review by the Native Title Holders and their advisers

## Pilot Plant Produced a High Quality Phosphate Rock Concentrate



An analysis of the beneficiated Ammaroo rock concentrate with high P2O5, low minor element ratios, relatively low calcium to

P<sub>2</sub>O<sub>5</sub> ratios and ultra low cadmium

**Ammaroo Phosphate Rock Concentrate elements** 

Element	
$P_2O_5$	33.2%
SiO <sub>2</sub>	7.2%
$Al_2O_3$	1.07%
Fe <sub>2</sub> O <sub>3</sub>	1.1%
MgO	0.27%
CaO	47%
MER (Minor Elements ratio)	0.074

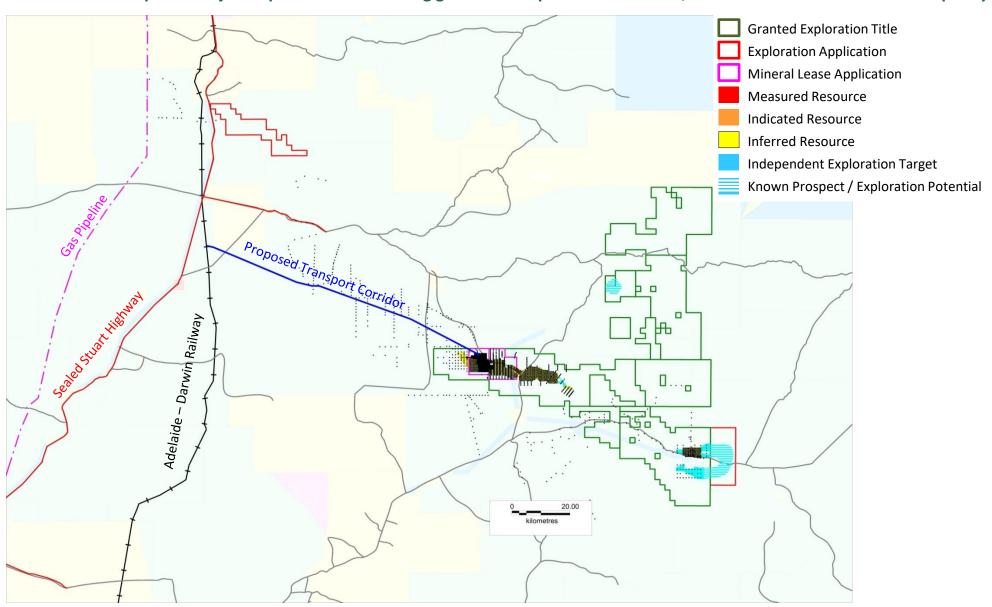




## Ammaroo is close to the necessary infrastructure



The Ammaroo Phosphate Project is proximate to existing gas and transport infrastructure, both of which have unutilised capacity



# Ammaroo Phosphate deposit is a very large, shallow, low strip ratio resource



The projects competitive advantage is derived from its very low mining and beneficiation costs





Ammaroo JORC Resource*						
Cut Off P <sub>2</sub> O <sub>5</sub> %	Category	Mt	P <sub>2</sub> O <sub>5</sub> %			
	Meas.	136	15.4			
10	Ind.	165	15.5			
10	Inf.	840	13.0			
	Total	1,141	14.0			
	Meas.	61	18.5			
4.5	Ind.	72	19.0			
15	Inf.	200	17.0			
	Total	333	18.0			



<sup>\*</sup> As announced to the ASX on 15/3/17 which has not changed.

#### Our near term focus



- Continued progression of the Ammaroo Phosphate Project:
  - Bankable Feasibility Study. Target completion Q1 2018
  - Environmental Approvals. Draft EIS submitted. Public and government review underway. Aiming for Minister sign-off Q1 2018
  - Completion of Ammaroo Native Title Agreements
  - Project financing arrangements
  - Establish Heads of Agreement that define required commercial arrangements with rail and port operators
- Continue engagement with the global fertiliser industry to establish partnerships for financing the project and offtake agreements



# **APPENDIX**

## **Corporate Overview of Verdant Minerals**



#### Capital Structure 13 November 2017

Ordinary shares on issue	963.8m
Options on issue	35.1m
Share price	\$0.029
Market capitalisation	\$28m
Cash* (30 September 2017)	\$6m

Top 5 shareholders		% held
1	Washington H Soul Pattinson and Company	38.3%
2	J P Morgan Nominees	4.0%
3	CitiCorp Nominees	2.9%
4	Farjoy	2.9%
5	Brispot Nominees	2.8%

#### 10 month Price History



<sup>\*</sup> Including secured term deposits

#### **Directors**



#### The Verdant Minerals' Board has significant industry experience and capability to develop projects

James Whiteside Non Executive Chairman



- Appointed to the Board in October 2016 and became Chairman in November 2016
- Successful and senior career in agriculture related industries
- Currently CEO of Ausveg Ltd.
- Former Chief Operating Officer of Incitec Pivot Fertilisers
- CEO of Quantum Fertilisers , Incitec Pivot's a global fertiliser trading joint venture
- Former Chairman and Director of Fertiliser Australia and Director of the International Fertiliser Association
- Graduate of the Australian Institute of Company Directors

**Chris Tziolis** *Managing Director* 



- Joined the Company as Director of Development Projects in November 2012 and became Managing Director in July 2014
- Previously held a number of senior management roles at Rio Tinto, most recently as Chief Development Officer of Energy Resources of Australia
- Formerly worked for McKinsey and Company, primarily engaging in strategy development and operational performance improvement for global mining companies
- Former Operations and Commanding Officer in Royal Australian Navy
- Member of the Australian Institute of Company Directors

Robert Cooper
Non Executive Director



- Appointed to the Board in July 2016
- Mining Engineer with over 25 years experience
- Previously held leadership positions with BHP Billiton as General Manager of Leinster Nickel Operations within Nickel West, Project Manager of a BHP Billiton-wide project, and as Asset President of Ekati Diamonds in Canada
- More recently held positions with Discovery Metals as General Manager
   Operations in Botswana and as General Manager
   Development
- Currently the CEO of CopperChem Limited and also Exco Resources Limited, both of which are 100% owned subsidiaries of the WH Soul Pattinson Group of companies

Jason Conroy
Non Executive Director



- Appointed to the Board in August 2017
- Previously Chief Financial Officer of the DUET Group, an ASX 100
   Infrastructure Company
- DUET owned and operated five energy infrastructure businesses including the Dampier to Bunbury Natural Gas Pipeline in Western Australia
- Prior to DUET, Jason was responsible for corporate finance at Origin Energy Limited after he had gained experience in restructuring, advisory, venture capital and corporate development roles in Australia and overseas
- Member of the Australian Institute of Company Directors

# Verdant Minerals' strategy is underpinned by the initial development of the Ammaroo Phosphate project



Advance the Ammaroo phosphate project to a bankable level of feasibility and complete environmental approvals to make the project investment ready. Engage with selected players in the fertiliser industry to secure a development partnerships/offtake



Seek interest from industry players and technology providers for the Sulphate of Potash portfolio with a particular focus on the Lake Amadeus/Karinga area of the Central Australian Ground Water Discharge Zone and Lake Frome in South Australia



Continue to evaluate the potential for the Dingo Hole silica to be converted to valuable high purity quartz

Create value for shareholders by aligning the company's market value to the underlying value of the projects