

# Focus and Momentum

Company Update – Mulga Rock Uranium Project
October 2014

### A New Start for EMA



### Drilling and pre-feasibility under way at Mulga Rock

- Three rigs on site with infill drilling underway
- Metallurgical bulk sampling and test work

### Large, world class resource in Western Australia

- Mulga Rock Project: clear-cut geology, mining, metallurgy
- 57.3 Mt @ 500ppm U<sub>3</sub>O<sub>8</sub> for 62.2 Mlb (28,000t) U<sub>3</sub>O<sub>8</sub>\*
- Aspiring to achieve 15 year mine life

### Targeting construction in 2H CY16

- Experienced management with proven track records with BC Iron and FMG with a focus on production
- State and Federal government support for uranium mining and export –
   management team with strong government relationships
- No 'red flags' in approvals process granted mining leases

\* See appendix for full details of mineral resource estimate

## Corporate overview – 15 October 2014



#### **Capital Structure**

Shares on issue 1,451 million

Share price \$ 0.070

Market cap \$ 101.5 million

Cash \$ 10.3 million

Debt \$0 million

**Enterprise value** \$ 91.2 million

**Options (unlisted)** 

400 million @5c (June 2016) 1 million @18c (Jan 2017) 20 million @5c (June 2018) 61 million @22c (Dec 2018) 61 million @10c (Dec 2018)

#### **Board and Technical Team**

The Hon. Cheryl Edwardes Non-Executive Chairman

Mike Young CEO and Managing Director

Julian Tapp Executive Director

David Cornell Non-Executive Director

Felicity Gooding Non-Executive Director

Shane McBride CFO and Company Secretary

Tony Chamberlain Project Manager MRP

Xavier Moreau Geology and Exploration

David Reid Consultant Resource Geologist

Colin Woolard Environmental Consultant

Eugene Dombrose Metallurgical Consultant

### **Significant Shareholders**

Forrest Family Inv. 28%
Acorn Capital 23%
Macquarie 21%
Michael Fewster 18%
Directors 3%

## Why Uranium?



### A paradigm shift is coming

- Demand / primary supply inversion
- Increased demand mainly from China

Chinese demand to create a boom like "iron ore on steroids"

J Tapp, EMA

### Uranium trading at 10 year lows - can't be sustained

- Project delays and closures to create tightening of supply
- Long term prices expected to be US\$70/lb
- Growing demand but slowing current investment

### Nuclear power

- A non-fossil fuel for base load power
- Cheapest form of electricity

"The world is sleepwalking towards an impending crisis (shortage of U)"

R Bromby, The Australian

## China in 20 years - assumptions



### China continues to grow albeit at a progressively slower rate

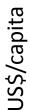
- Since the beginning of this century China's rate of growth has been around 10% pa
- Assume it slows to between 5% and 6% y-o-y over the next 20 years
   economy will treble in size
- By 2035 average wealth as measured by GDP/capita will be approaching US\$30,000 per person
  - Equivalent to a mid-ranking European economy *increase electricity use*

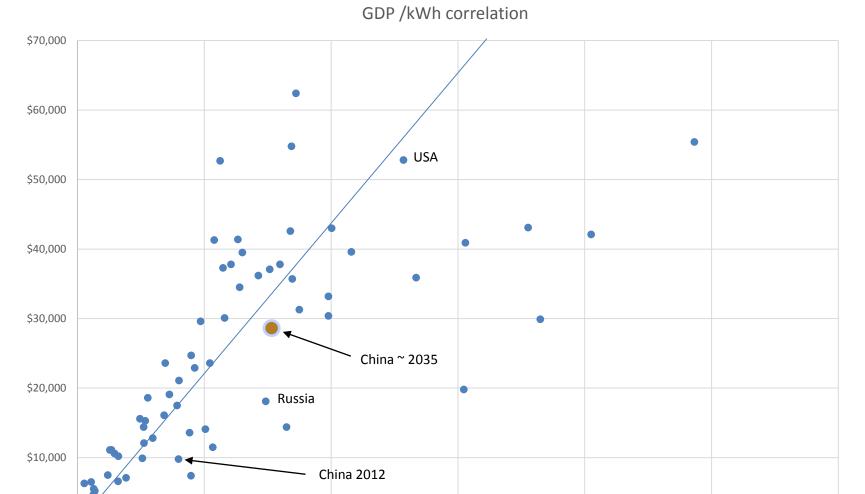
### **China other developments**

- China's population reaches a peak at around 1.45 billion people
- Its economy becomes more oriented towards domestic consumers (slightly less energy intensive)
- Electricity consumption per person ~ 7,000kWh in line with level of wealth
- Current levels of efficiency will require generating capacity > 2,500GW
   roughly doubling
  - Will require equivalent of > 1GW addition every week for next 20 years



## Cross sectional analysis of electricity consumption





15,000

20,000

5,000

10,000

30,000

kWh per person per year

25,000

### Location – Western Australia



"The tenement package covers a whole **Uranium province**"

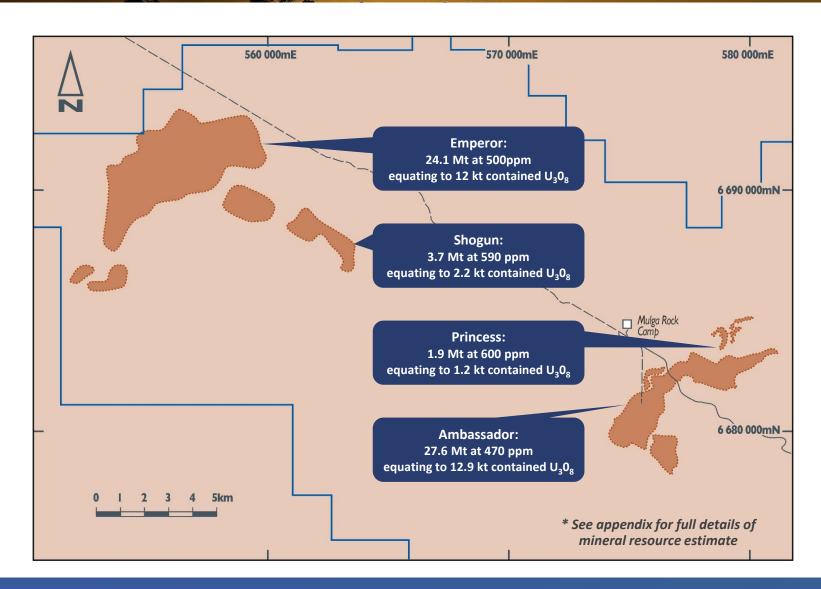




- 240km ENE of Kalgoorlie in the Great Victoria Desert
- The deposits are covered by granted Mining Leases
- Access is via the Tropicana Mine Road

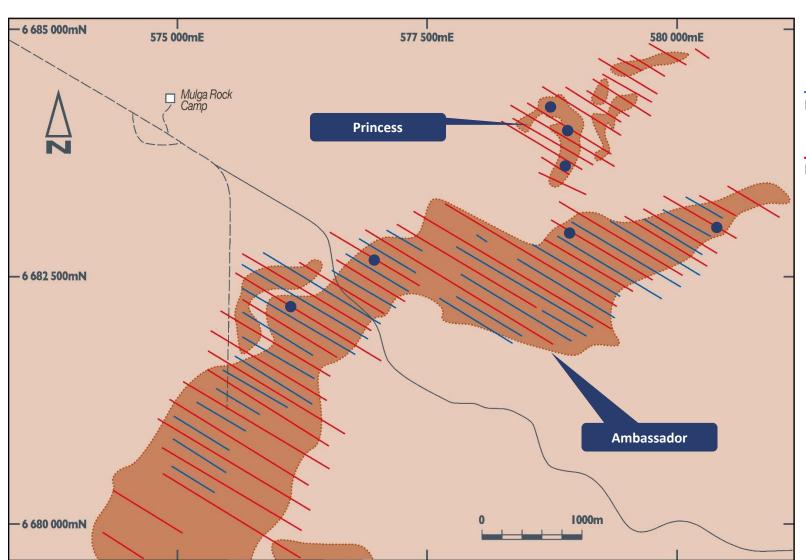
## Project plan of deposits





# Drilling – planned and current





**Existing drilling** 

Planned drilling

Met holes

# Drilling, Drilling







Metallurgical bulk sample drilling using 8" diamond core

# Drilling, Drilling





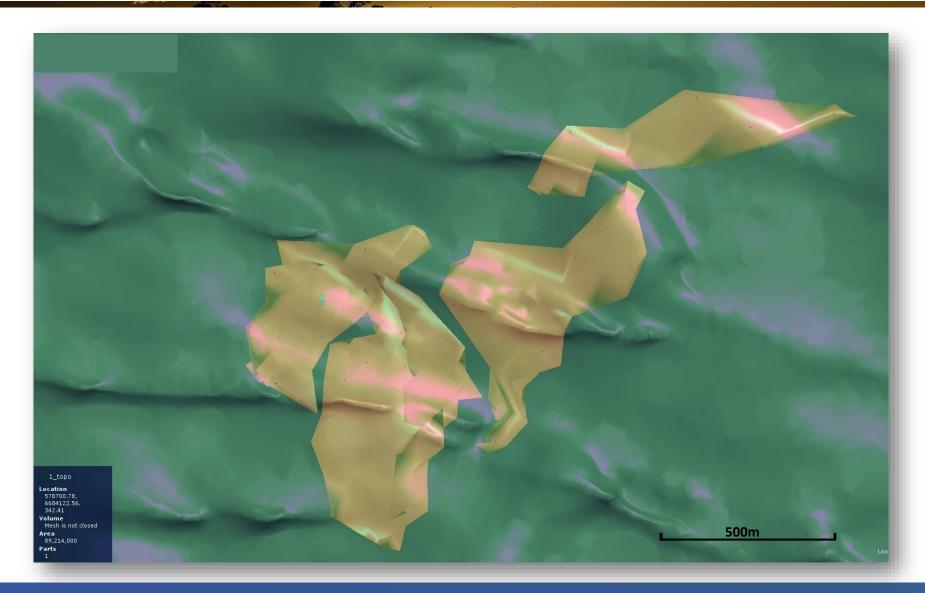
Air core reverse circulation

6 instrument, down hole geophysics



# **Princess Deposit**

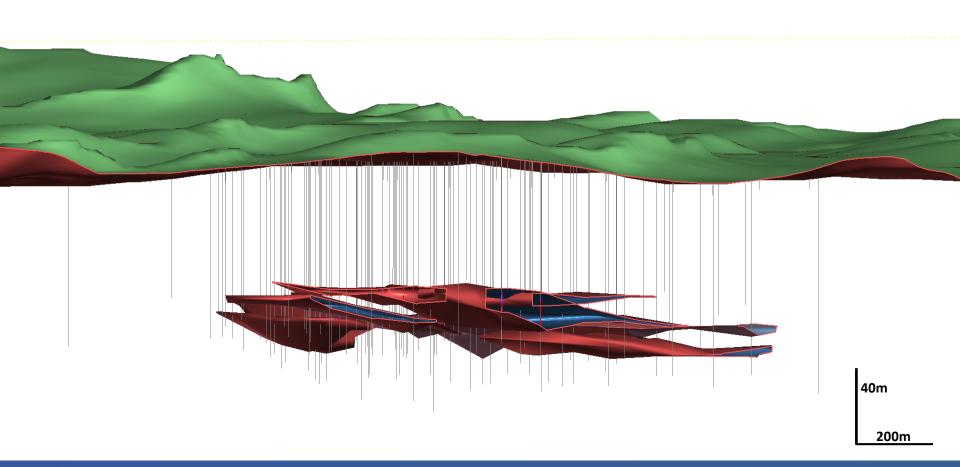




# Princess Deposit 3D cross section



**Vertical exaggeration 5x** 



## Geology – flat and simple

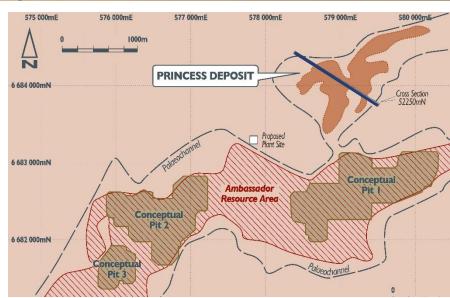


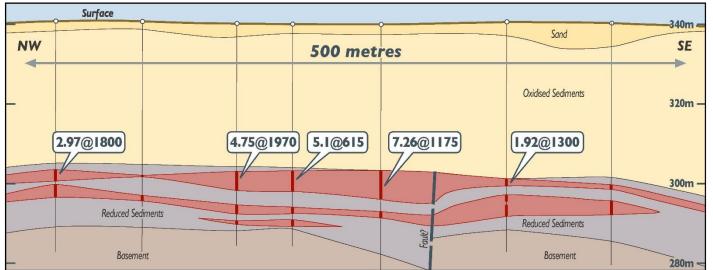
 Hosted within deeply weathered sediments comprising:

Carbonaceous sandstone; silt; sandy lignites

- Mostly ionic, <u>free Uranium</u> associated with carbonaceous material and lignite – no complex silicate minerals
- Deep weathering = soft rock

 Deep pit voids provide possible tailings disposal



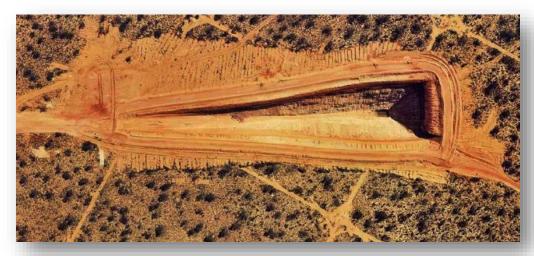


### Mining – open pit

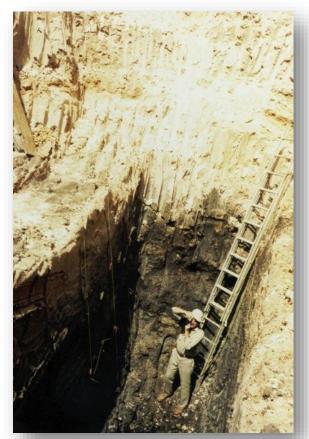


### Open pit mining

- Current in fill drilling confirming continuity and grade
- Japanese test pit (shown at right and below) at Shogun in 1980s shows clear demarcation between Ore:Waste
- Deep weathering allowed for free digging by excavator
- DFS will explore methods such as scraping or continuous miners for waste removal and ore mining



Test pit at Shogun dug by PNC in the 1980s



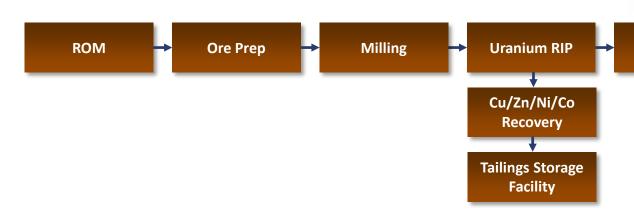
Close-up in test pit showing lignite ore and free dig nature of material

## Metallurgy de-risked



### Significant advances in metallurgical test work

- Preliminary flow-sheet developed acid leach, RIP
- Met drilling now underway 8" diamond core
- Acid leach has been selected uranium extraction:
  - Historic work = proof of concept
- Recent optimisation work indicating significant improvements in acid consumption – reduced costs
- Acid leach exhibits fast kinetics at ambient temperatures
  - Simple plant design
- Resin-in-pulp preferred due to nature of carbonaceous ore

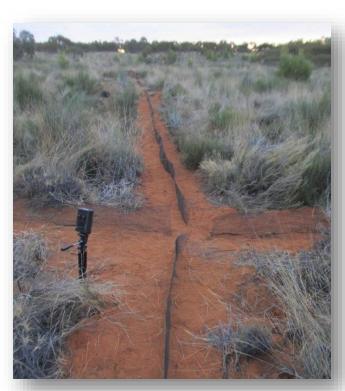




Uranium Drying/
Precipitation Packaging

# Innovative environmental surveys





Remote motion sensor camera with marsupial run-lines



Marsupial mouse captures on camera

## Pre-Feasibility underway



### Metallurgical test work

- 8" DDH bulk sampling Princess and Ambassador
- Beneficiation, Leach and Resin test work
- Uranium metal and base metal recovery

#### Resource infill drilling and resource estimation

- Resource RC and DDH drilling at Ambassador
- Twin drilling at Princess
- Updated resource estimates Princess and Ambassador
- Mine optimisation and ore reserves

#### **Environmental approvals**

- Environmental and Heritage studies for Public Enviro. Review (PER)
- PER submission in ~November 2014
- PER approval expected ~November 2015

### Feasibility study – 2H CY15 to 1H CY16

- Infill drilling (where required), resource estimation, and mine optimisation and scheduling
- Recovery optimisation and pilot plant to confirm up-scaling of front-end processing
- Engineering studies and long lead items



## EMA – Aspirational Statements \*



- Mulga Rock a significant deposit > 62Mlb U<sub>3</sub>O<sub>8</sub> (57Mt @ 500ppm U<sub>3</sub>O<sub>8</sub>)\*
- EMA aims to produce at >1,300tpa  $U_3O_8$  for up to 15 years
- Considered possible to produce concentrate (and by-products) at low costs even in tough market conditions
- Could be under construction in 2H 2016
- Target schedule:
  - Pre-feasibility study UNDERWAY and expected completion June 2015
  - Environmental studies and PER submitted 2H 2014
  - Feasibility study June 2015 to June 2016
  - Final investment decision June 2016
  - Construction and pre-strip 2H 2016

\* See appendix for full details of mineral resource estimate

\* These are "Aspirational Statements" and the lower level of confidence associated with the Inferred Mineral Resources means that there is no certainty that further exploration work will result in the determination of Indicated or Measured resources or that the aspirational targets will be achieved.

## Summary – Focus and Momentum



### A Uranium shortage is coming

- Demand/supply inversion looming
- New supply slowing or being mothballed
- Chinese driven demand + Japan/Russia

### Mulga Rock Deposits

- 62 Mlb U<sub>3</sub>O<sub>8</sub> Inferred Resource\* world class
- Studies and work on schedule for 2016 start up

"The Mulga Rock deposits, combined with an improving macroeconomic environment and management's clear focus, could see EMA become
Australia's next Uranium producer"

### **Executive and Management**

- Committed to production "Production key to growth"
- Experienced company builders
- Experienced and Focussed

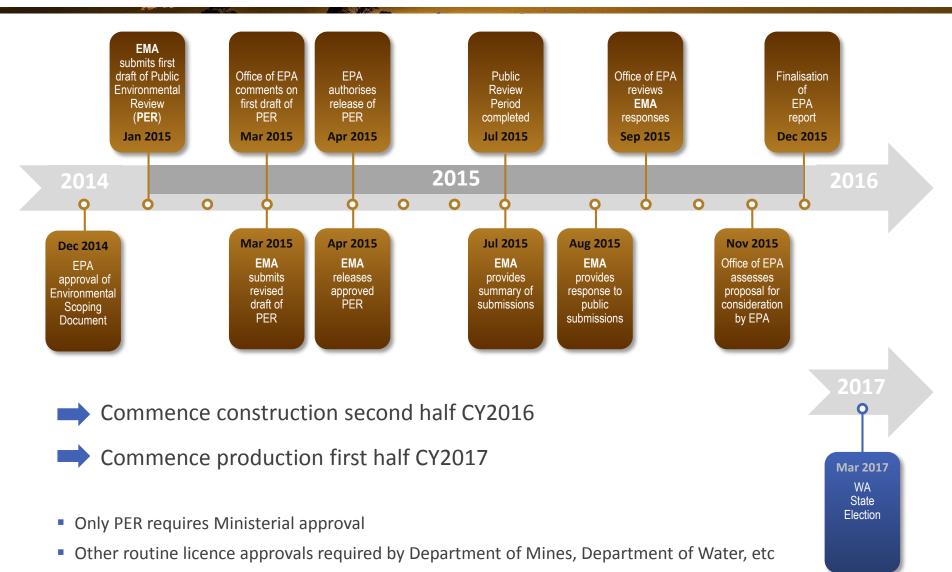
### Financial re-structure in July 2014 – a \$36m turn around

- Successfully raising A\$12m in new equity
- Conversion of all debt to equity
- Quality share register Forrest Family Investments, Acorn, Macquarie

\* See appendix for full details of mineral resource estimate

## Notional timing of Mulga Rock Project





### Inferred Mineral Resource Estimate



Deposit	Cut-off Grade (ppm eU₃Oଃ)	Million Tonnes	eU₃O <sub>8</sub> Grade (ppm)	Contained Metal (kt U₃O8)	M lbs U <sub>3</sub> O <sub>8</sub>	Author
Ambassador						
Upper Lignite	200	16.7	600	10	22.0	Coffey Mining 2010
Lower Lignite	200	3.7	320	1.2	2.6	
Sandstone	100	7.2	240	1.7	3.7	
Princess	200	1.9	600	1.2	2.5	EMA 2012
Emperor	200	24.1	500	12	26.4	Coffey
Shogun	200	3.7	590	2.2	4.8	Mining 2009
TOTAL INFERRED		57.3	500	28.3	62.2	

Resource estimates by Coffey Mining - Ambassador Estimate as announced to the ASX on 11 June 2010, using EMA and historic data - Emperor and Shogun Estimate as announced to the ASX on 13 January 2009, using historic data.

Resource estimates by Energy and Minerals Australia – Princess Estimate as announced to the ASX on 4 December 2012 using EMA and historic data.

Using cut combined  $U_3O_8$  composites (combined chemical and radiometric grades); t = metric tonnes; appropriate rounding has been applied.

This information was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.



### People: The Board



#### The Hon. Cheryl Edwardes – Non-Executive Chairman

- Former WA State Government Minister holding Ministries of Environment, Labour Relations and Attorney General
- Providing statutory and approvals advice to Atlas Iron, Hancock Prospecting, FTI Consulting
- Significant networks in State and Federal Government and broad experience and networks in China's business community

#### Mike Young – Chief Executive Officer and Managing Director

- Founding Managing Director of BC Iron Limited (**ASX200:BCI**) from 2006 2013. BC Iron went from first drill hole to first ore on ship in under four years and now exports 6 Mtpa of Iron Ore from a JV with FMG (75:25 BCI:FMG)
- Experienced Mining Consultant Resource Modelling and Estimation with Golder Associates
- Founding director of uranium developer Bannerman Resources and currently non-executive Chairman of Cassini Resources
- Studied at Queens University, Ontario and worked on Uranium exploration projects and mines in Canada

#### **Julian Tapp - Chief Operating Officer and Executive Director**

- Head of Government Relations and Director of Strategy at Fortescue Metals Group until 2012 with special responsibility for expediting approvals
- Trained as an economist in London, lectured at a number of universities including the London School of Economics
- Economist and later Chief Economist for Ford of Europe, BP and Rover Group before transitioning into role as Director of New Business Development

#### **David Cornell – Non-Executive Director**

- Founding director of the Element Group with significant commercial and financial experience in the mining and oil and gas sectors
- Previously an associate director at the LinQ group which managed Australia's largest listed resource fund
- Specialist in providing corporate and professional services to both WA junior explorers and international mining companies

#### **Felicity Gooding – Non-Executive Director**

- Chartered Accountant specialising in due diligence, mergers and acquisitions and equity and debt financing
- Chief Financial Officer of Minderoo, encompassing the philanthropic and private business holdings of Andrew and Nicola Forrest
- Held senior positions at PricewaterhouseCoopers, Diageo Plc, Fortescue Metals Group and Sirius Minerals Plc.

## People 2: The Team



#### Shane McBride – Chief Financial Officer and Company Secretary

- Certified Practicing Accountant with over 33 years of commercial management experience gained in listed Australian companies
- Served as CFO, company secretary and director in exploration, development and producing mining companies
- Fellow of CPA Australia and Governance Institute of Australia and the Institute of Chartered Secretaries and Administrators

#### **Xavier Moreau - Geology and Exploration**

- General Manager of Geology and Exploration at EMA since February 2010
- Valuable uranium project management experience with Areva and U3O8 Limited
- Extensive experience in uranium and gold exploration with Areva and Afmeco with significant time spent on Goldfields projects
- Educated in France and Canada and holds an Honours degree in Geology

#### **Tony Chamberlain – Feasibility Study Manager**

- Involved in a number of uranium projects in Australia, Asia, Africa and Eurasia
- Extensive operational and process engineering experience with WMC and BHP Billiton projects
- Delivered pre-feasibility and feasibility studies and process design packages for Goldfields, Barrick, Paladin and Mega Uranium

#### Colin Woolard - Environmental Consultant

- Over 20 years of hands-on experience in geology and environmental management with WMC Resources Ltd, including Olympic Dam
- Provision of advice to senior management and technical assistance to line management on policy, management systems, compliance reporting, auditing, contaminated site rehabilitation and remediation and closure planning

#### **Eugene Dombrose – Metallurgical Consultant**

- Provides services to mining companies including problem solving, feasibility studies, and strategic direction setting
- Provided advice to the development, pilot testing and flow sheet of a Western Australian carbonate-hosted uranium deposit



#### Disclaimer

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#### Competent Person's Statement

The information in this announcement that relates to the Princess Exploration Results, Princess Mineral Resource Estimate ( $U_3O_8$ ), Resource Database and Bulk Density are based on information compiled by Xavier Moreau and Michael Fewster, who are Members of the Australian Institute of Geoscientists. Mr Moreau is a full time employee of the Company. Mr Fewster is a consultant to the Company and potential beneficiary of the Busani Family Trust, a substantial shareholder of the Company. Messrs' Moreau and Fewster have sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which is being undertaken to qualify as Competent Persons as defined in the 2004 Edition of the JORC 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Messrs' Moreau and Fewster consent to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.

The information in this announcement that relates to the Ambassador, Emperor and Shogun Mineral Resource estimates ( $U_3O_8$ ) is based on information compiled by Neil Inwood and Iain Macfarlane on June 2010. Mr Inwood and Mr Macfarlane are Members of the AusIMM. Mr Inwood and Mr Macfarlane were employed by Coffey Mining as consultants to the Company at the time of the resource estimates and public release of results. As Mr Inwood and Mr Macfarlane are now no longer employed by Coffey Mining, Coffey Mining has reviewed this report and consent to the inclusion, form and context of the relevant information herein as derived from the original resource reports for which Mr Inwood's and Mr Macfarlane's consents have previously been given. Mr Inwood and Mr Macfarlane have sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which is being undertaken to qualify as a Competent Person as defined in the 2004 Edition of the JORC 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'.