



**SOUTH BOULDER**  
MINES LTD



## ***Colluli: Positively Unique***

**Maiden Ore Reserve Presentation  
May 2015**

***Paul Donaldson – CEO and Managing Director***

*Helping grow a better future*

ASX:STB

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There can be no assurance that the development of the Colluli Project will proceed as planned. Accordingly, readers should not place undue reliance on forward looking information. Mineral Resources and Ore Reserves have been estimated using the Australian JORC (2012) Code (‘JORC 2012’), which is a permitted code under Canadian National Instrument 43-101 (‘NI 43-101’). In addition to the CIM Definition Standards on Mineral Resources and Mineral Reserves. Mineral Resource classifications under the two reporting codes are recognised as equivalent in categories with no material differences. To the extent permitted by law, the Company accepts no responsibility or liability for any losses or damages of any kind arising out of the use of any information contained in this presentation. Recipients should make their own enquiries in relation to any investment decisions.



# Colluli Project Summary

- Danakil basin hosts a world class potash resource
- Major fertiliser producers are now working on projects in the region
- Ore Reserve represents a large, long life, expandable project
- Shallow mineralisation substantially improves resource recovery
- Clear advantages in safety, expandability and selectivity
- Close proximity to the Red Sea coast and the most favourable access to market
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- Study results predict bottom quartile operating costs
- Potash product diversification not matched by any other potash basin in the world





# The Danakil region – a globally significant potash basin

*Geographically  
favourable*

*Large basin in close  
proximity to coast*

*Highly accessible*



# The Danakil region – a globally significant potash basin

- Potential of the Danakil recognised by major fertiliser players



**Market  
Cap  
US\$9B**

Currently finalising the purchase of Allana Potash

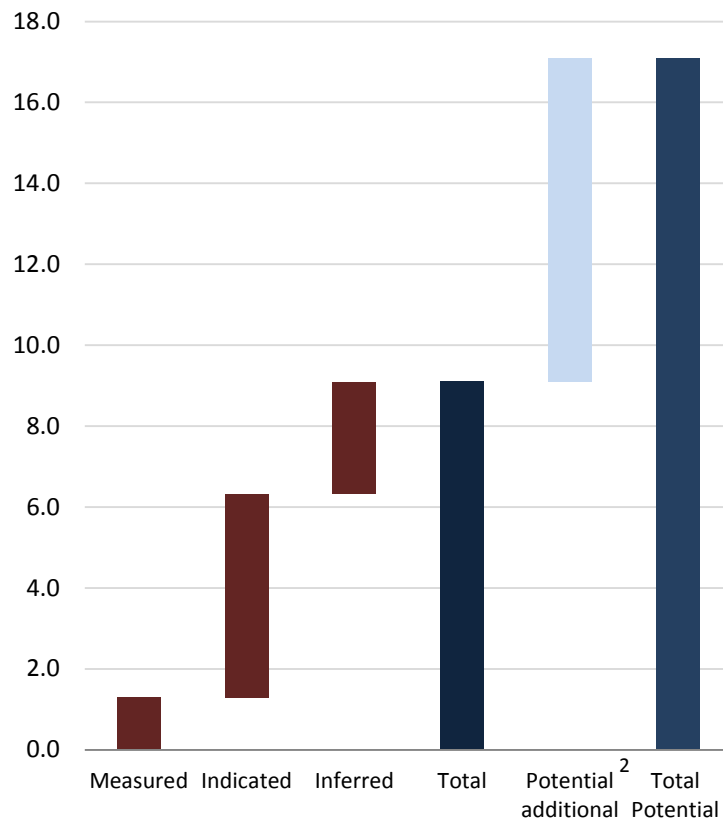


**Market  
Cap  
US\$14.5B**

Recently completed DFS on sulphate of potash project<sup>3</sup>

- Over 9 billion tonnes of measured and indicated potassium bearing salts identified in the Danakil region to date<sup>1</sup>
- Seismic data indicates potentially an additional 7 to 9 billion tonnes<sup>2</sup>

**Danakil Basin Reported Potassium Salts**  
Billion tonnes<sup>1</sup>



1. Company announcements: Allana Potash, South Boulder Mines, Circum

2. Circum company website

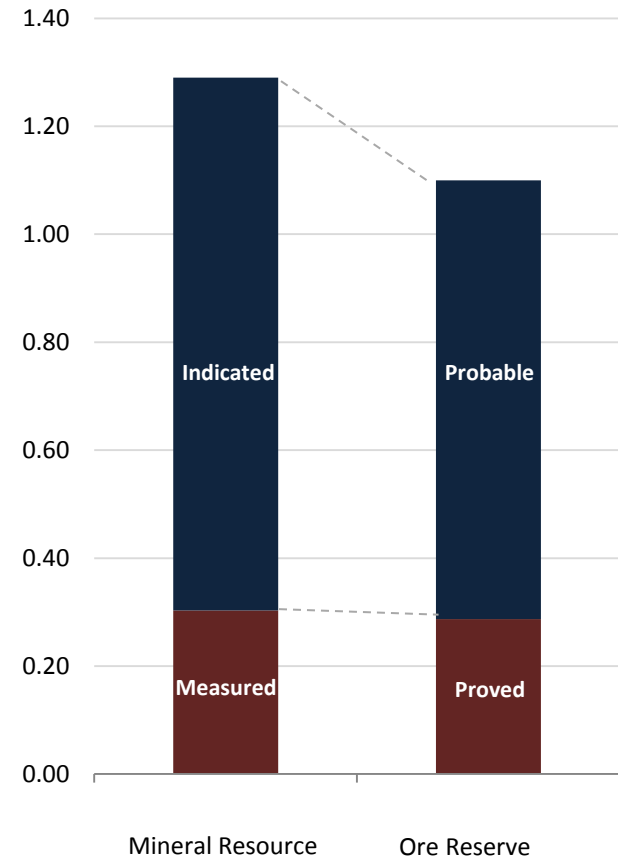
3. Yara have completed a DFS for 600,000 tonnes per annum of sulphate of potash production. No resource data published



# Colluli is a large, long life, expandable resource

- **1.1 billion tonnes of Ore Reserve**
  - 287 million tonnes Proved Ore Reserve
  - 820 million tonnes Probable Ore Reserve
  - Largest SOP resource of advanced projects
- 97% of Measured Resource converted to Proved Ore Reserve
- 88% conversion of Measured and Indicated Resource to Proved and Probable Ore Reserve
- Approximately 205 million tonnes of SOP contained in Ore Reserve

**Colluli Mineral Resource and Ore Reserve estimate**  
Billion tonnes



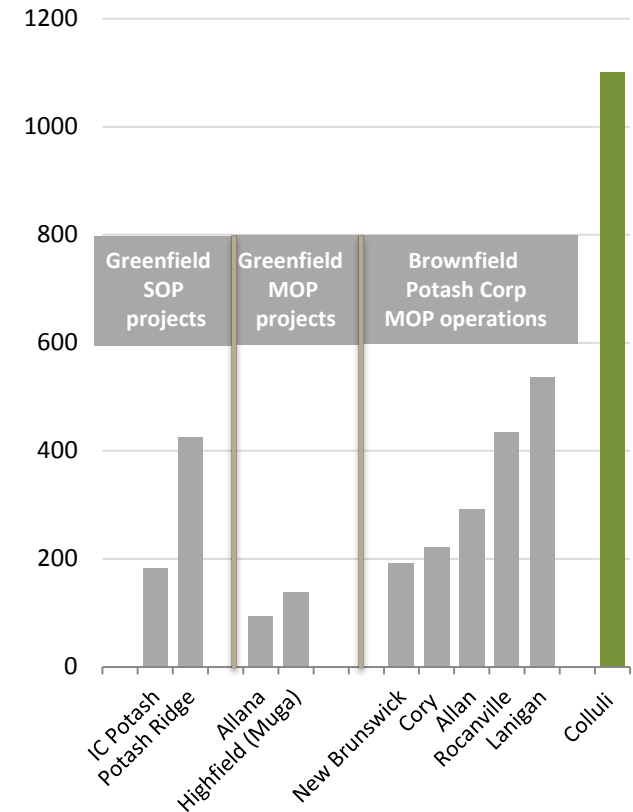
# Colluli Ore Reserve in perspective

- Colluli Ore Reserve estimate dwarfs many planned and current large scale operations

Company	Project	Design Capacity (Mtpa)	Mine Life (yrs)
IC Potash	Ochoa	0.75	50
Potash Ridge	Blawn Mountain	0.65	40
Allana	Danakhil Project	1.00	20
Highfield	Muga	1.12	24
Potash Corp	New Brunswick	0.80	107
	Cory	1.50	125
	Allan	1.40	100
	Rocanville	2.80	74
	Lanigan	3.40	85
South Boulder Mines	Colluli	0.850	243

## Ore Reserve estimates for selected potash (MOP and SOP) projects

Million tonnes<sup>1,2</sup>



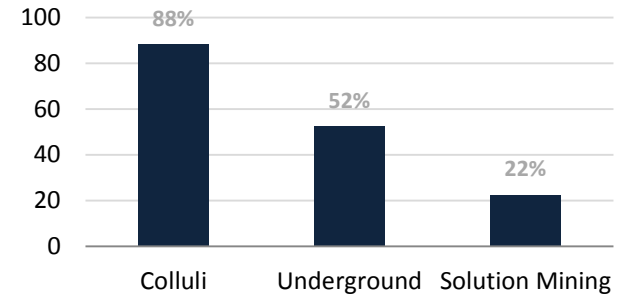
- Company websites, Potash Corp annual report
- MOP = Muriate of Potash, otherwise known as potassium chloride
- SOP = sulphate of potash, otherwise known as potassium sulphate



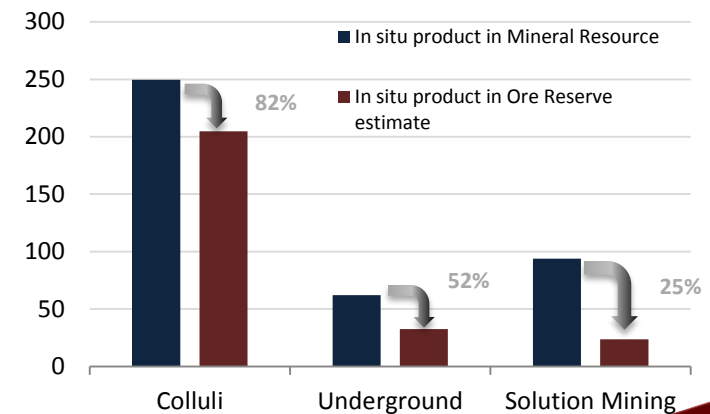
# The benefits of shallow mineralisation are clear

- Open pit mining substantially increases the mineable material
  - No resource loss for roof support
    - Room and pillar mining for potash sterilises approximately 50 to 55% of the resource<sup>1</sup>
  - No solution mining complexities
    - losses from roof support
    - geological continuity and seam thickness
    - preferentially soluble salt types
- In addition to high resource recovery, open pit mining also has the advantages of
  - Safety – safer working conditions and better safety record than underground mining
  - Expandability – open cut mining offers ease of growth using the principles of modularity
  - Selectivity – salts within diverse suites can be selectively mined, allowing consistent grade and stable processing operations

**Conversion of Mineral Resource to Ore Reserve estimates for selected potash (MOP and SOP) projects**  
%<sup>2,3</sup>



**In situ product in Mineral Resource and in situ product in Ore Reserve estimates for selected potash (MOP and SOP) projects**  
Million tonnes<sup>1,2</sup>



1. Underground mining methods and applications, company reports  
2. South Boulder Mines Mineral Reserve, Allana Potash, IC Ochoa

3. IC Ochoa mine life run over 50 years



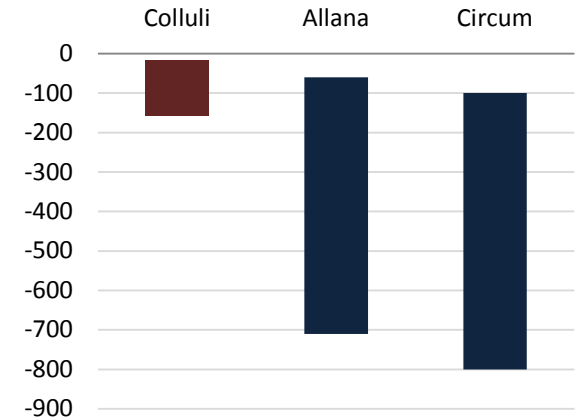


# Colluli has the best access to both resource and market

- Colluli contains the shallowest mineralisation in the Danakil
  - Mineralisation commences at just 16m depth
  - Excellent geological continuity
  - Amenable to open cut mining
- Colluli has the best access to the Red Sea coast
  - Planned export facility only 75km from the Colluli mine site
  - Only 180km from the Port of Massawa
  - Trucking in Ethiopia Dallol region to Djibouti over 600km

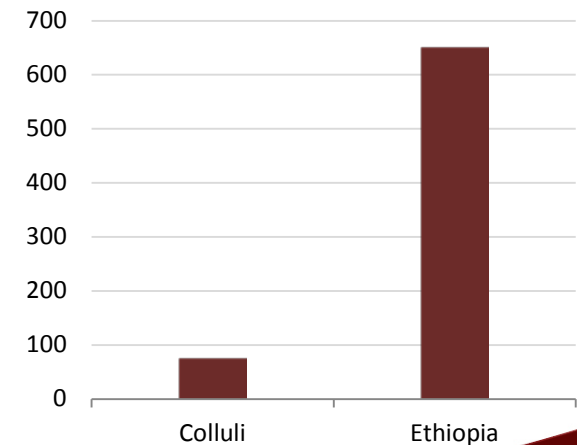
**Danakil Basin Depth of Resource**

m below surface<sup>1,2,3</sup>



**Danakil Basin Coastal Access**



















km to export location



1. Company announcements: Allana Potash, South Boulder Mines  
2. Circum data taken from SEDAR publications for Agriminco  
3. Allana and Circum projects are both located in Ethiopia



# Open pit mining and surface reclamation of salts proven and positive

Mine Method <sup>1,2</sup>	Selectivity of salts	Expandability	Resource Recovery	Surface Operational footprint	Water Requirements	Subsidence risks
Open cut						
Underground Mining						
Solution Mining						



*Most favourable*



*Least favourable*



*Open Pit Salt Mining, Salar Grande*



*Salt Lake Surface Mining, Turkey*



*Wirtgen Surface Miner Cutting Salt*

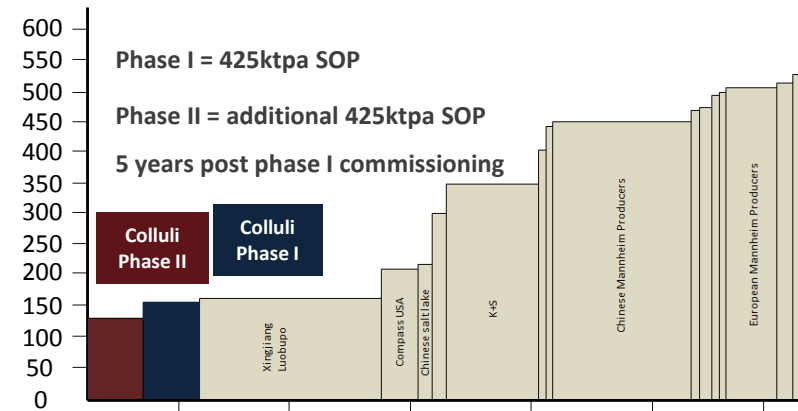
1. South Boulder Mines Analysis
2. Colluli is planned as an open cut mine



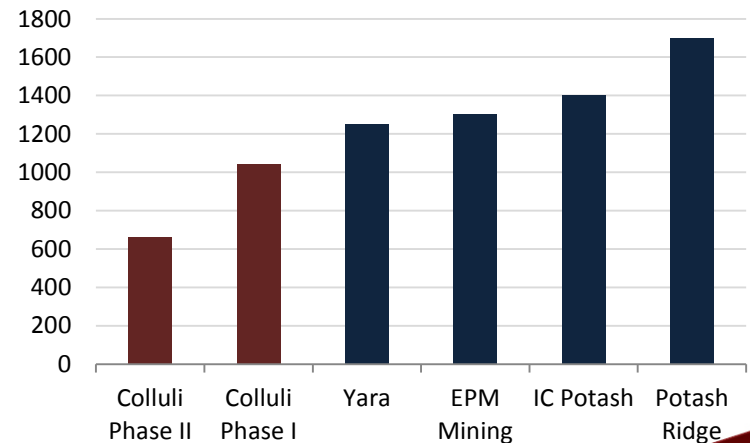
# Lowest operating costs and capital intensity

- In Feb. 2015, South Boulder Mines released an economically attractive prefeasibility study for a two phase development for production of sulphate of potash (SOP)
  - Colluli PFS indicates lowest operating costs for SOP production globally
  - Colluli has the lowest capital intensity of advanced greenfield SOP projects globally
  - Phase I demonstrates robust economics with significant upside in Phase II
  - Colluli is one of only two SOP projects in the world with development capital <US\$450m
- Underpinned by a large resource with the capability of potash product diversification, the project can support a pipeline of projects to grow capacity well beyond Phase II

**Mine gate operating costs for SOP production**  
US\$ per tonne<sup>1</sup>



**Capital intensity of advanced SOP projects**  
US\$ per tonne<sup>2</sup>



1. CRU Research, EPM Mining presentation 2014, Company websites, Integer Research  
2. South Boulder Mines Prefeasibility Study

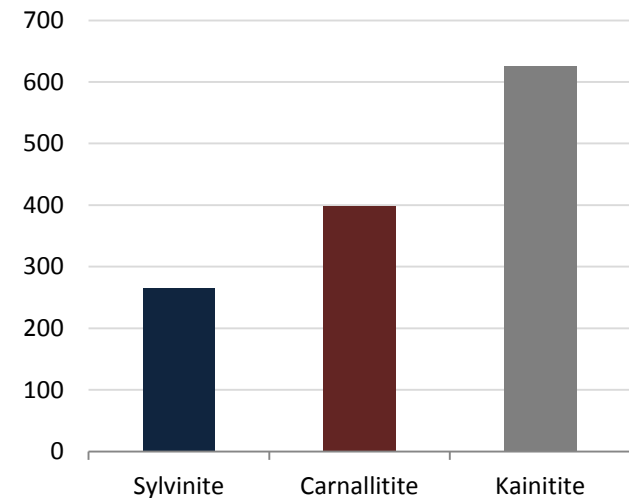


# Premium potash for a growing global population

- The Danakil is one of only three regions in the world with substantial volumes of Kainite, the most important potassium salt for the primary production of SOP
- SOP is a premium sulphur bearing potash fertiliser that achieves a substantial price premium over the more common potassium chloride (MOP)
- Other major Kainite rich regions have exhausted resources beyond economic sustainability<sup>2</sup>
- While highly suitable for the production of SOP, the suite and composition of potassium salts in Colluli also allows the production of a variety of potash types

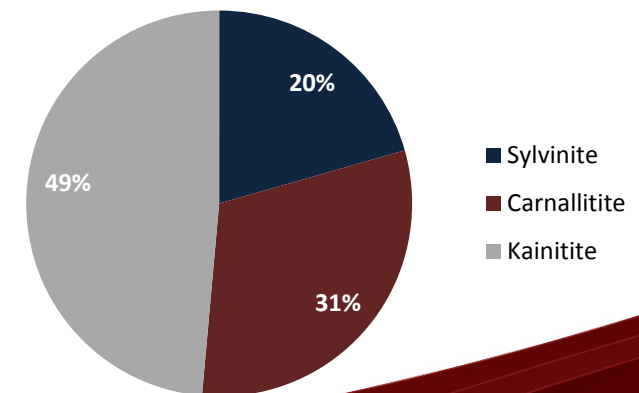
**Colluli Potassium Salt Types**

Million tonnes<sup>1</sup>



**Colluli Potassium Salt Types**

% of each salt type in the Colluli Mineral Resource <sup>1</sup>



1. Company announcements: South Boulder Mines, 25<sup>th</sup> February 2015  
2. Kainite rich deposits previously mined in Sicily , Ukraine and Germany. Germany has depleted resources



# Unmatched potash diversification potential

- The variety of potassium salts in the Danakil basin provides unrivalled potash diversification opportunities that cannot be replicated by any other potash basin in the world
- Colluli has the largest advantage of potash product diversification due to selective mining of potassium salts from open pit operations
- The potential potash suite includes sulphate of potash (SOP), sulphate of potash magnesia (SOP-M) and muriate of potash (MOP)

Colluli Potash Type Production Potential

Danakil Potential	Potash Type	Also known as	Sale Price US\$/tonne <sup>1</sup>	Nutrients	Uses
✓	Potassium Chloride	MOP	340	Potassium	Staples – wheat, corn, chloride tolerant crops
✓	Sulphate of Potash Magnesia	SOP-M	450	Potassium, sulphur and magnesium	Specialty fertiliser, high value crops, limited production centres
✓	Sulphate of Potash	SOP	720	Potassium and sulphur	Chloride intolerant and specialty crops such as fruits, vegetables, nuts, beans and coffee
	Potassium Nitrate	NOP	970	Potassium and nitrogen	Chloride sensitive crops that require additional nitrogen

1. Greenmarkets, Compass Minerals Quarterly Report, Potash Corp





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# Resource statement

The Current Colluli JORC-Compliant Mineral Resource Estimate by potash mineral is as follows:

Area	Rock Unit	Measured		Indicated		Inferred		Total	
		Mt	K <sub>2</sub> O Equiv %	Mt	K <sub>2</sub> O Equiv %	Mt	K <sub>2</sub> O Equiv %	Mt	K <sub>2</sub> O Equiv %
Area A	Sylvinite	65	12	38	11	10	8	115	11
	Carnallite	55	7	190	9	6	16	251	9
	Kainite	86	12	199	11	1	10	285	11
Area B	Sylvinite	24	15	122	13	5	12	150	13
	Carnallite	25	6	114	7	8	7	147	7
	Kainite	48	13	289	13	4	13	341	13
Total	Sylvinite	90	13	160	13	15	9	265	12
	Carnallite	80	7	303	8	15	11	398	8
	Kainite	133	12	488	12	5	12	626	12

## Competent Persons and Responsibility Statement

Colluli has a JORC 2012 compliant Measured, Indicated and Inferred Mineral Resource estimate of 1,289Mt @11% K<sub>2</sub>O. The resource contains 303Mt @ 10.98% K<sub>2</sub>O of Measured Resources, 951Mt @ 10.89% K<sub>2</sub>O of Indicated Resources and 35Mt @ 10.28% K<sub>2</sub>O of Inferred Resources.

The information in this report relating to the Colluli Mineral Resource was compiled by Mr. John Tyrell, under the supervision of Mr. Stephen Halabura M. Sc. P. Geo. Fellow of Engineers Canada (Hon), Fellow of Geoscientists Canada, and as a geologist with over 25 years experience in the potash mining industry.

Mr. Tyrell is a member of the Australasian Institute of Mining and Metallurgy and a full time employee of AMC. Mr. Tyrell has more than 25 years experience in the field of Mineral Resource estimation.

Mr. Halabura is a member of the Association of Professional Engineers and Geoscientists of Saskatchewan, a Recognised Professional Organisation (RPO) under the JORC Code and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the JORC Code).



# Colluli Ore Reserve estimate

The Current Colluli JORC-Compliant Ore Reserve Estimate by potash mineral is as follows:

Occurrence	Proved (Mt)	%K <sub>2</sub> O equiv	Probable	%K <sub>2</sub> O equiv	Total	%K <sub>2</sub> O equiv	%K <sub>2</sub> SO <sub>4</sub> equiv	K <sub>2</sub> SO <sub>4</sub> (Mt)
Sylvinite (KCl.NaCl)	78	15	175	12	253	13		
Carnallite (KCl.MgCl <sub>2</sub> .H <sub>2</sub> O)	79	7	282	8	361	8		
Kainite (KCl.MgSO <sub>4</sub> .3H <sub>2</sub> O)	130	12	363	11	493	11		
<b>Total</b>	<b>287</b>	<b>11</b>	<b>820</b>	<b>10</b>	<b>1107</b>	<b>10</b>	<b>18.5</b>	<b>205</b>

## Competent Persons and Responsibility Statement

Mark Chesher is the Competent Person for the 2015 Colluli Ore Reserve estimate, and supervised preparation of the Ore Reserve estimate with assistance from specialists in each area of the study. Mr Chesher is a Fellow of the Australasian Institute of Mining and Metallurgy, a Chartered Professional, and is a full-time employee of AMC Consultants Pty Ltd. He has sufficient open pit mining activity experience relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the JORC Code 2012. Mr Chesher consents to the inclusion of information relating to the Ore Reserve in the form and context in which it appears.

In undertaking the assignments referred to in this report, AMC Consultants Pty Ltd acted as an independent party, has no interest in the outcome of the Colluli Project and has no business relationship with South Boulder Mines Ltd other than undertaking those individual technical consulting assignments as engaged, and being paid according to standard per diem rates with reimbursement for out-of-pocket expenses. Therefore, AMC Consultants Pty Ltd and the Competent Person believe that there is no conflict of interest in undertaking the assignments which are the subject of this statement.

