

# **Presentation to Shareholders**

**South Boulder Mines AGM** 

2014

Paul Donaldson – CEO and Managing Director

Helping grow a better future

## **Forward Looking Statements and Disclaimer**

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Factors that could cause actual results to differ materially from those in forward-looking statements include market prices of potash and, exploitation and exploration successes, capital and operating costs, changes in project parameters as plans continue to be evaluated, continued availability of capital and financing and general economic, market or business conditions, as well as those factors disclosed in the Company's filed documents.

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 have been estimated using the Australian JORC (2004) Code ('JORC 2004'), 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 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.



# **Corporate Overview**

Capital Structure as at November 2014				
Ordinary shares on issue	139.43m			
Options on issue	23m			
Share Price <sup>1</sup>	\$0.215			
Undiluted Market Capitalisation	\$29.98m			
Debt	\$0			
Cash <sup>1</sup>	\$8.9m			
Undiluted Enterprise Value	\$21.1m			

Directors and Management						
Seamus Cornelius	Non executive chairman					
Tony Kiernan	Non executive director					
Liam Cornelius	Non executive director					
Paul Donaldson	Managing Director					
James Durrant	Project Manager					
Zeray Leake	Country Manager					



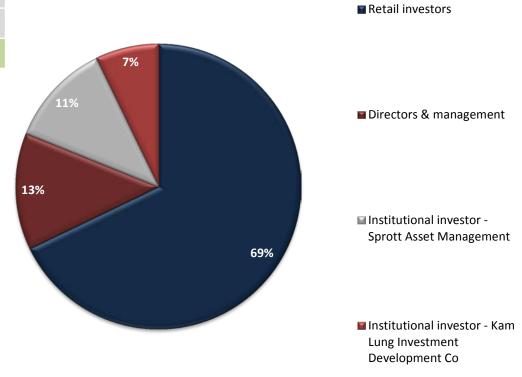
**Share price performance 2014** ASX:STB 0.35 0.30 0.25 0.20 0.15 0.10 11/09/2014 -11/02/2014 11/03/2014 11/04/2014 11/11/2013 11/12/2013 11/01/2014 11/05/2014 11/06/2014 11/07/2014 11/08/2014 11/10/2014 11/11/2014

<sup>&</sup>lt;sup>1</sup> As of 13<sup>th</sup> November 2014

# **Corporate Overview**

Major Shareholders					
Sprott Asset Management	10.96%				
Kam Lung Investment Development	7.17%				
Top 25 shareholders	62.15%				
STB Management	13%				

## **STB Shareholder Distribution**





# **Colluli highlights**

- 1. Large, high grade potassium bearing resource close to surface in an emerging potash province.
- 2. Close proximity to coast and geographically favourable relative to key markets.
- 3. Highly favourably suite of potassium bearing salts for low cost production of potassium sulphate (SOP or sulphate of potash) using simple mineral processing units (flotation and mixing).
- 4. Relationship with Joint Venture partners (ENAMCO) a key enabler to project success.



# **Development focus**

Our vision is to bring the Colluli project into production using the principles of risk management, resource utilisation and modularity, using the starting module as a growth platform to develop the resource to its full potential.



## 2014 Summary

STB and CMSC have made excellent progress on the Colluli project over the past 12 months.

- Completed studies to process all potassium bearing salts from the resource with associated mine plans.
- Secured access to Anfile Bay for produce export.
- Initiated pre-feasibility study to produce potassium sulphate (SOP) using simple ambient temperature, high potassium yield process.
- Submitted first tranche of environmental baseline assessments.
- Completed strategic share placement to KLID with option for further purchase upon securing a binding offtake agreement for potassium sulphate.
- Completed pre-feasibility drilling for infrastructure locations and pit designs.
- Completed prefeasibility process plant design and process flow diagrams.
- Produced high grade potassium sulphate using Colluli salts and PFS processing design.
- Achieved highly favourable metallurgical test results.
- Reduced infrastructure requirements by evaluating alternate plant configuration.
- PFS completion on track for early 2015.



#### **Potash and Demand Drivers**

Potash is a generic term used to describe a variety of potassium bearing minerals and manufactured chemicals used primarily as fertiliser.

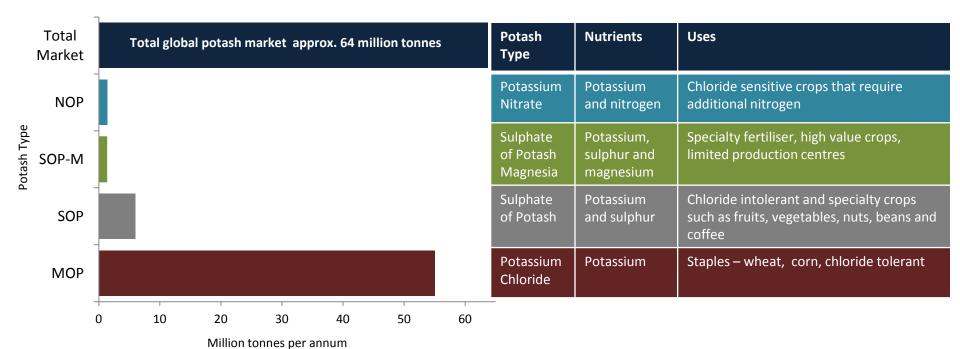


# Key drivers of growth

- 1. Increasing global population: +80 million people annually.
- 2. Decreasing arable land.
- 3. Changing dietary preferences.



# Potash comes in a variety of forms



Source: UN FAO, BMO Capital Markets



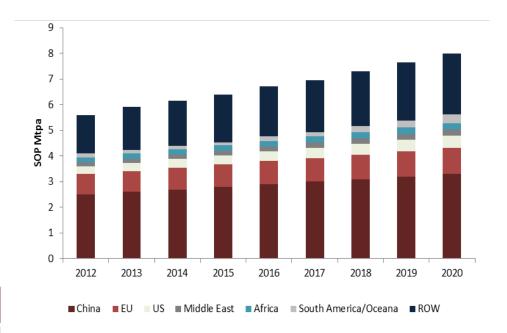
# SOP - solid growth fundamentals and limited new projects

#### Fertiliser growth underpinned by:

- Growing population: +80 million people per year
- Reduction in arable land : Increased crop yield per acre required
- Changing dietary preferences: Developing economies changing to higher protein diets and increased fruit and vegetable intake

#### Limited greenfield projects

- Potassium sulphate is geologically scare
- Only one greenfield project at DFS completion stage
- High energy inputs
- DFS Projects = 1
- PFS Projects = 2



4% CAGR and approx. 2 million tonnes of SOP growth projected over next decade

Source: Parthenon Analysis, EPM Mining



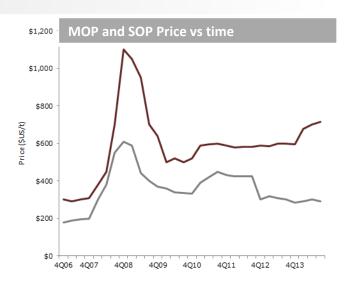
## Substantial price premium over potassium chloride

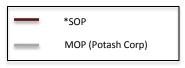
# Significant price premium over potassium chloride (MOP)

- Historical price premium has been in the order of 35%
- Current premium over 80%

# Price differential reflects lack of new supply

- Price differential has been progressively increasing since 2012
- While potassium chloride supply has grown considerably, low cost potassium sulphate growth has not been realised





\*Compass Minerals North American average selling price for sulphate of potash combined with Greenmarkets data, compared to North American average selling price of Potash reported by Potash Corporation of Saskatchewan

Source: Compass Minerals Limited Presentation, Nov'13, Greenmarkets



Source: Compass Minerals Limited Presentation, Nov'13, Greenmarkets



# Large, high grade potassium bearing resource

Over 1 billion tonnes of potassium bearing salts – all potassium salts in the Colluli resource are suitable for the production of potash fertilisers.

Shallow mineralisation supports

Colluli as open pit — a proven, safer mining method, easier to expand and better overall resource recovery than underground.

One of only three major deposits containing kainite salt (key salt for SOP production) in solid form globally

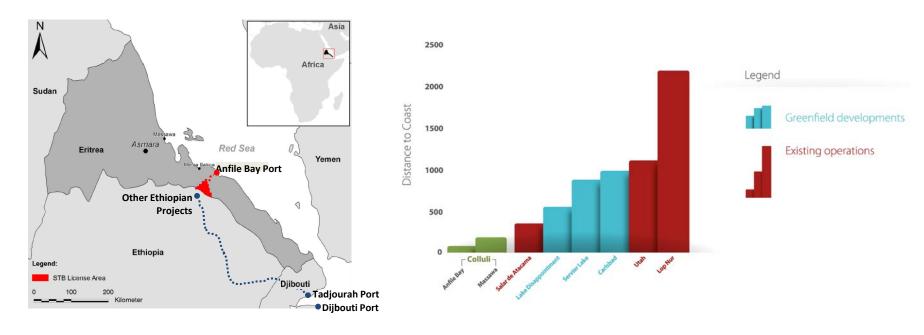
Colluli at a Glance						
Location	South Eritrea					
Size	Approximate	ly 400km <sup>2</sup>				
Product	Sulphate of P	otash				
Resource <sup>1</sup>	Measured: Indicated: Inferred: <u>Total:</u>	262Mt 581Mt 173Mt <i>1016Mt</i>				
Potassium Bearing Salts	Sylvinite: Carnallitite: Kainitite:	110Mt 309Mt 597Mt				
Process	Flotation/Solar Evaporation					
Stage	PFS level testwork program underway					

<sup>&</sup>lt;sup>1</sup> Refer to Resource Statement on Page 25



## Close proximity to the coast

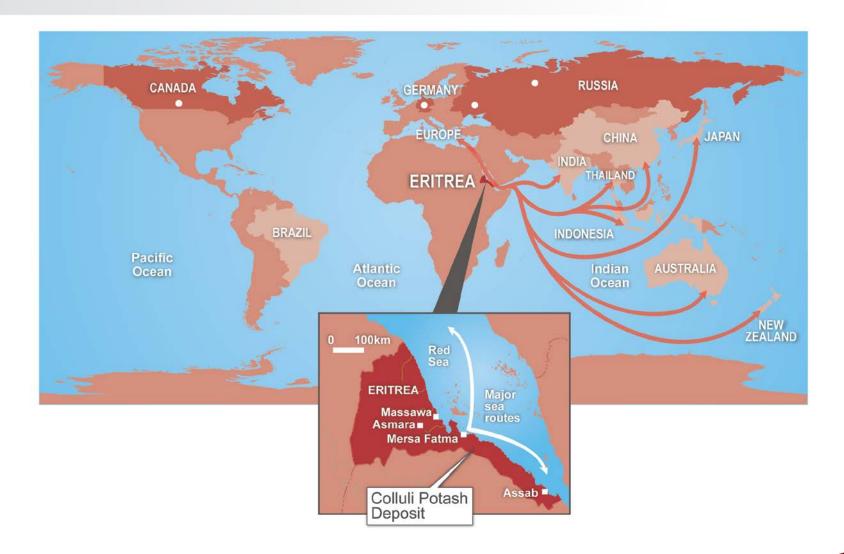
The Colluli resource has the most favourable coastal access from the Danakil depression and relative to peers.



- Location is significantly closer to port than potassium sulphate peers.
- Trucking is a low cost option to access port.
- Deepwater access at Anfile Bay suitable for loading vessels up to Panamax size.

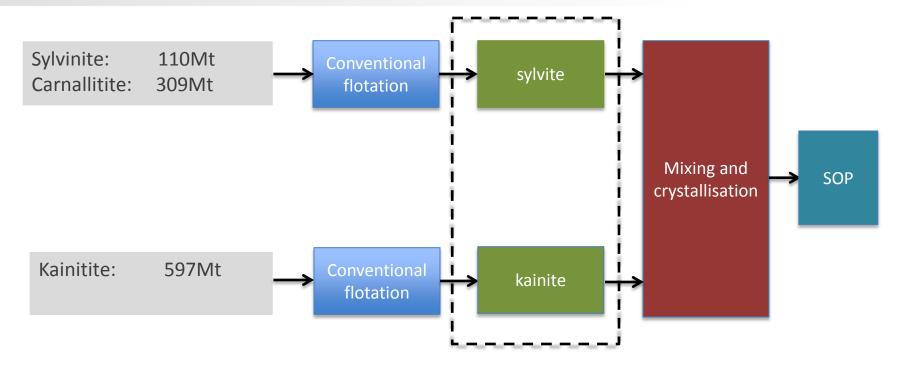


# Well located to key growth markets





## Salt composition is ideal for low cost SOP production



### Metallurgical Results to date are highly favourable

- 1. Commercial grade potassium sulphate produced from Colluli salt mix using simulated process.
- 2. Flotation test results > 80% potassium recovery.
- 3. Elimination of grinding.
- 4. Overall circuit recovery expected to be ~ 85% potassium recovery.



# Colluli has many other advantages in addition to salt composition

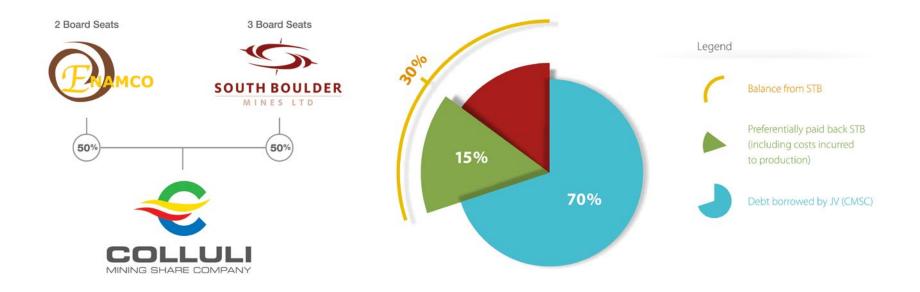
- 1. No communities within the exploration tenements.
- Process can accommodate
   seawater consistent and
   unlimited water supply to be
   piped from the Red Sea coast to
   the Colluli site. No major
   abstraction from local aquifer.
- 3. Unsealed coastal road runs within 60km of the Colluli site.
- 4. Simple logistics for minesite consumables (only 180km from Massawa port).
- 5. No clearing required.
- 6. Ease of access for construction equipment and mining fleet.







#### The Joint Venture is an enabler



- The Colluli potash project is 100% owned by the Colluli Mining Share Company (CMSC).
- CMSC is a formally incorporated and established entity .
- STB holds 50% stake in CMSC, while Eritrean National Mining Company (ENAMCO) holds the balance.
- Both parties are highly focussed on a successful development.



# Highly capable team working through PFS



**Colluli Study Manager: James Durrant** 

**Commencement Date: May 2014** 



Resource
Mine planning
Mine geotech



Infrastructure and process design (with Global Potash Solutions)



Hydrogeology, ponds and infrastructure geotech



**Metallurgical Testing** 



**Export logistics** 



Social and Environmental Impact
Assessment



# Accomplishments

Options review to process all salts completed	Feb
CMSC incorporated	Mar
Initiated transfer of resource model to AMC consultants	Mar
Commencement of metallurgical testwork for SOP production	Apr
Appointed study manager	May
Established all project workstreams for feasibility studies	May
Anfile Bay allocated to the project as export location	Jun
Oceanography studies initiated	Jul
First tranche of environmental baselines submitted	Aug
Resource hole 'twinning' and geotech drilling initiated	Sep
Exploration license renewal completed	Sep
Prefeasibility process design completed	Oct
Prefeasibility drilling completed ahead of schedule	Oct
Commercial grade SOP produced from Colluli salts	Oct



# **PFS** well progressed

Milestones		201	014E 2015E		2016E						
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Metallurgical Testwork											
Preliminary Feasibility Study											
Finalise the resource											
Feasibility Study											
Social Environmental Impact Assessment											
Mining License Application											
Funding											
Detailed Engineering											
Phase 1 Construction											



# **Upcoming milestones**

- 1. Final metallurgical report and associated mass balances.
- 2. Completion of mining study.
- 3. Finalisation of resource review.
- 4. Initiation of pilot plant for DFS.
- 5. DFS drilling and completion of hydrogeology work.
- 6. Aggregation of operating and capital costs.
- 7. Submission of next tranche of environmental submissions.
- 8. Finalisation of the pre-feasibility study.
- 9. Commencement of funding discussions.



## **Summary**

- 1. Colluli is a large, shallow potassium bearing resource with a combination of salts favourable for low energy, high yield production of potassium sulphate.
- 2. It is close to the coast and positioned favourably relative to key potash consuming markets.
- 3. Pre-feasibility work has progressed well throughout the year.
- 4. Metallurgical testwork has verified the process design and high potassium yields.
- 5. STB has a strong and effective relationship with ENAMCO and see the JV as a project enabler.
- 6. Feasibility studies are underpinned by a highly capable team.
- 7. Pre-feasibility completion is planned for February 2015 and DFS by mid 2015.







# Thank you

# **Appendix**



#### Resource statement

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

Occurrence	Tonnes (Mt)	Equivalent KCl	Contained KCI (Mt)	% of Total Resource
Sylvinite (KCl.NaCl)	110	28.4%	31	16%
Polysulphate (K <sub>2</sub> SO <sub>4</sub> .NaCl.MgSO <sub>4</sub> .H <sub>2</sub> O)	65	10.8%	7	4%
Carnallite (KCl.MgCl <sub>2</sub> .H <sub>2</sub> O)	309	12.3%	38	19%
Kainite (KCl.MgSO <sub>4</sub> .3H <sub>2</sub> O)	596	19.8%	118	61%
Total	1,080	18.0%	194	100%

The Colluli Potash Project has a current JORC/NI43-101 Compliant Measured, Indicated and Inferred Mineral Resource Estimate of 1,079.00Mt @ 17.97% KCl or 11.35% K2O (total contained potash of 194.09Mt KCl or 122.61Mt K2O). The resource contains 261.81Mt @ 17.94% KCl or 11.33% K2O of Measured Resources, 674.48Mt @ 17.98% KCl or 11.36% K2O of Indicated Resources and 143.50Mt @ 18.00% KCl or 11.37% K2O of Inferred Resources.

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 by independent consultants ERCOSPLAN and announced by South Boulder on 16 April 2012.

#### **Competent Persons and Responsibility Statement**

The information in this report that relates to Exploration Results and Mineral Resources is based on information compiled by Greg Knox using estimates supplied by South Boulder Mines Ltd under supervision by Ercosplan. Dr Henry Rauche and Dr Sebastiaan Van Der Klauw are co-authors of the JORC and NI43-101 compliant resource report. Greg Knox is a member in good standing of the Australian Institute of Mining and Metallurgy and Dr.s' Rauche and Van Der Klauw are members in good standing of the European Federation of Geologists (EurGeol) which is a "Recognised Overseas Professional Organisation" (ROPO). A ROPO is an accredited organisation to which Competent Persons must belong for the purpose of preparing reports on Exploration Results, Mineral Resources and Ore Reserves for submission to the ASX.

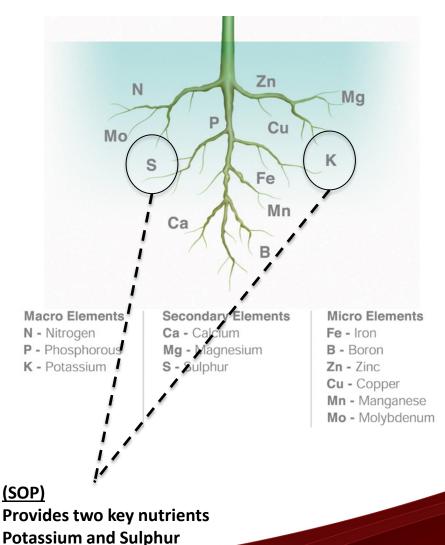
Mr Knox, Dr Rauche and Dr Van Der Klauw are geologists and they have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they have undertaken to qualify as a Competent Person as defined in the 2004 Edition of the "Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Knox, Dr Rauche and Dr Van Der Klauw consent to the inclusion in the report of the matters based on information in the form and context in which it appears.



# **SOP (Sulphate of Potash/Potassium Sulphate)**

### Potassium sulphate (SOP)

- High value potash fertiliser
- Provides both potassium and sulphur in soluble forms
- Lower salt index than MOP (no chloride)
- Suitable for chloride sensitive crops such as fruit, berries, vines, nuts, coffee, tobacco
- Ideal for arid areas where chlorides cannot be washed away
- Used where soil or irrigation water salt levels are high and MOP is undesirable





# Limited low cost potassium sulphate (SOP) resources globally





# **Limited greenfield projects**

#### Limited greenfield projects and high energy requirements

- Potassium sulphate is geologically scare
- Only one greenfield project at DFS completion stage
- High energy inputs
- DFS Projects = 1
- PFS Projects = 2

Project	Location	Phase	Capacity	Capex est.	Capital Intensity	Process
1	New Mexico	DFS Complete	700kt/yr	\$1.2b	\$1714/t	Calcine (500°C), leach, crystallise
2	Utah	PFS Complete	300kt/yr	\$378m	\$1260/t	Solar evaporation, slurry (90°C)crystallise
3	Utah	PFS Complete	770kt/yr	\$1.1b	\$1429/t	Calcine (550°C), leach, crystallise

Source: IC Ochoa N43-101 Definitive feasibility study EPM Sevier Lake, Preliminary feasibility study Potash Ridge preliminary feasibility study



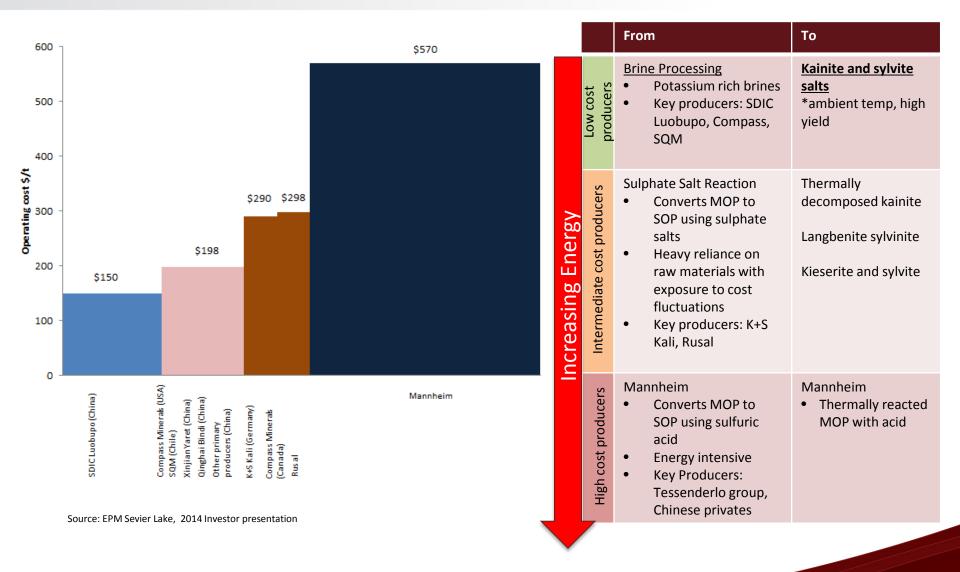
# SOP production processes Energy, yield, and production costs <u>directly related to salt types</u>

Salts	Process	Temperature	Potassium Yield	Currently commercially used	Comments
Kainite + sylvite	Flotation, mixing, crystallisation	Ambient	80 – 85%	<b>√</b> √	Current process used by low cost brine producers in Utah, Chile and China
Kainite	Thermal decomposition and crystallisation	50 to 90°C	65– 75%	×	Historically used by Itakali at the Pasquasia plant. Variants planned in Utah and Australia
Langbenite + sylvite	Thermal decomposition and mixing	60 – 90°C	75 – 80%	×	None found
Kieserite and sylvite	Hot leaching	75-110°C	Not available	<b>√</b>	K+S
Polyhalite	Calcine, hot leach, mechanical vapour recompression, crystallisation	450 – 500°C	80 – 83%	×	Pilot-tested by the United States Bureau of Mines ("USBM") from the 1920s to the 1940s, and by Potash Corporation of America (PCA) in the 1950s
Sulphuric acid plus sylvite	Direct thermal reaction	600°C	Not available	<b>√</b>	Mannheim process – commonly used in Europe and China

Source: Garrett, D. 1996, Potash, 1st Edition IC Ochoa N43-101 Definitive feasibility study report



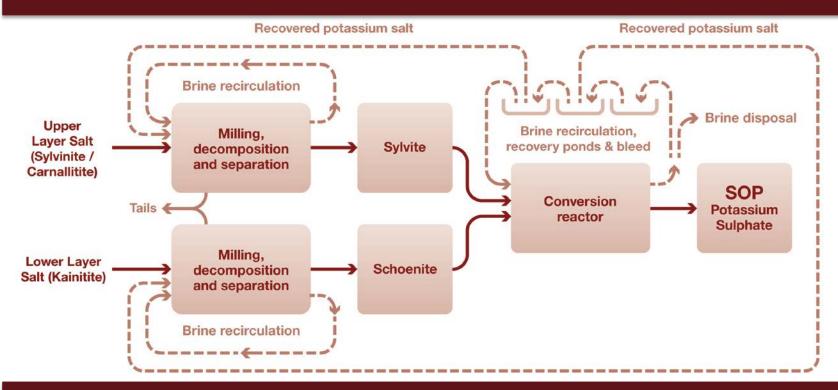
# **Production processes change perception of cost curve**





# Recovery enhanced by capturing and evaporating exiting brines

## Potassium chloride produced is combined with kainite to produce SOP



This is the lowest energy input, highest potassium yield route to potassium sulphate



## Production process is simple and proven

- 1. Colluli's key salts can be purified using simple liberation and conventional flotation processes.
- 2. The combination of the purified salts results in an ambient temperature, high yield conversion directly to potassium sulphate.
- 3. This simple, proven process is currently used by low cost brine producers.
- 4. The key difference is that Colluli starts with salts rather than brine. This is a major advantage of the Colluli resource. It reduces footprint size, improves reliability of productivity, and reduces complexities of brine chemistry management.
- 5. The presence of kainite and sylvite (from sylvinite and carnallite) give the Colluli a major advantage for SOP production. It is the combination of these salts that minimise energy inputs and result in maximum potassium yield.



### Colluli's salts start in solid form

- 1. Limited resources globally with kainite in solid form
- 2. Mostly occurs as brines
- 3. Advantages of starting with salts in solid form:
  - i. Reduced footprint (no up front evaporation)
  - ii. High concentration from commencement brines approx. 5kg per tonne of water
  - iii. Faster ramp up no requirement to generate harvest salt ahead of production
  - iv. Reliability of production production is not materially impacted by changes in ambient conditions
  - v. Less complex brine chemistry needs to be carefully managed to generate harvest salts of the desired composition ambient conditions can influence the final chemistry



# Adopting the principles of modularity

Colluli has changed the development philosophy from large scale development to one where modularity and expandability are key themes.

# Why Modularity?

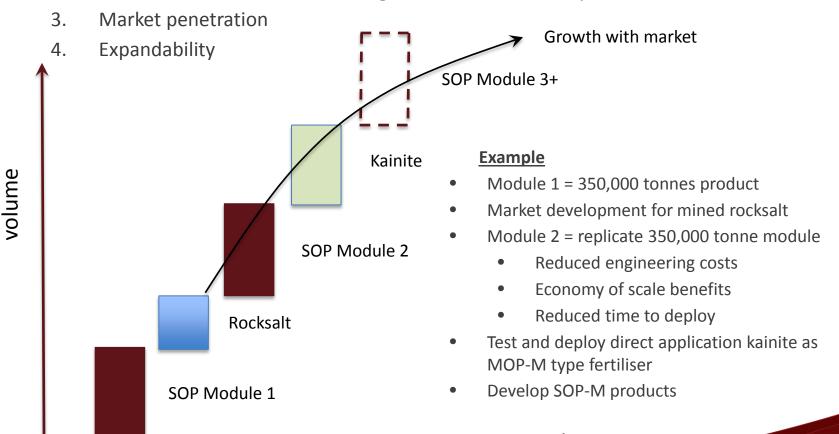
- 1. Risk Mitigation: Safety, Capital/Commercial
- 2. Process Optimisation
- 3. Capital Management
- 4. Ease of Expandability



# Prefeasibility results will underpin module 1 size

### Our focus is on balancing fundability, economic return and risk mitigation

- 1. De-risking the project
- 2. Resource utilisation introducing other value accretive products

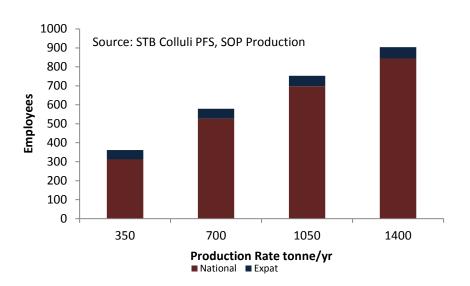




## **Risk mitigation**

## **Safety:**

- Managing workforce size, skills and training
- Avoiding competition for limited skills within developing mining industry
- Developing capability at a manageable rate



# **Capital/Commercial:**

- Analysis of Australian
   mining projects shows
   larger % cost increases with
   increasing project size
- Highest level of confidence in the bracket with the largest number of projects (\$100m - \$500m)

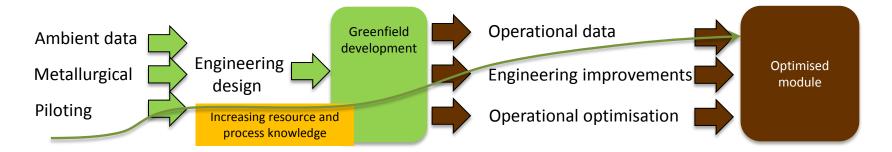
Value of Mining Projects Completed (\$m)	20 – 100	101 - 500	501 - 1000	+1000
Number completed	43	54	17	27
Average cost change	2.4%	-3.8%	4.0%	14.6%

Source: Deloitte Access Economics, March 2014



## **Process and resource optimisation**

#### **Process Optimisation**



- Greenfield developments rely on data acquisition and metallurgical test programs for process design. While this proves and derisks the process, operational data and process understanding are core elements of process optimisation.
- Module designs can be optimised with the combination of data, plant performance, improved understanding of raw material and processing behaviour.



# Colluli's infrastructure solution based on modularity



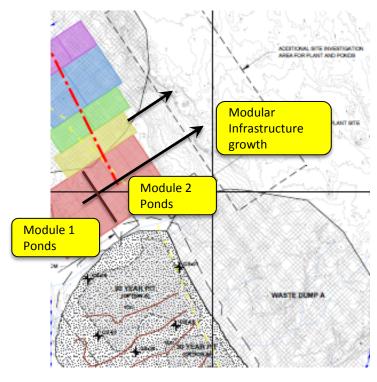
**Modular Servicing Bays (example)** 



**Modular Fuel Pods (example)** 



Modular Offices and Camp (example)



- Simpler logistics
- Reduced Earthworks
- Ease of expandability
- Improved capital management
- Improved process ramp up



# **Potential market opportunities**

# Markets for these products are well established.

#### **Potential Markets for Various Resource Mineralisation**

Mineral Present at Colluli	Colluli Resource <sup>1</sup>	Global Market Context	
rock salt (NaCl)	+ 650Mt	300Mtpa global salt market	
halite (NaCl)	OSOIVIE	Socivitpa giobai sait market	
bischofite (MgCl <sub>2</sub> )	+200Mt	6 – 7Mtpa global market	
anhydrite	Avg 4% ( ~40Mt)	187Mtpa Gypsum market	
kieserite (MgSO <sub>4</sub> )	40Mt	Established fertiliser segment	



<sup>&</sup>lt;sup>1</sup> Refer to Resource Statement on Page 25

## **Experienced board and management**



#### Paul Donaldson, CEO and Managing Director

Mr Donaldson was appointed to the role of Chief Executive Officer in February 2013. He joins South Boulder Mines from a series of senior management roles with BHP Billiton. Mr Donaldson has experience in large scale open cut mine management, supply chain logistics, mineral processing, business improvement and marketing. He has tertiary qualifications in Metallurgy, Chemical Engineering, Mining Engineering and Business Administration.



#### **Liam Cornelius, Non Executive Director**

Mr Cornelius graduated from Curtin University of Technology with a BAppSc in Geology. He has been involved in the exploration industry within Australia and Africa for 18 years.



#### **Seamus Cornelius, Non Executive Chairman**

Mr Cornelius has 21 years of corporate experience in both legal and commercial negotiations. He has been based in Shanghai and Beijing since 1993, where he has been living and working as a corporate lawyer. From 2000 to 2011 Mr Cornelius was an international partner with one of Australia's leading law firms, specialising in cross border investments in the energy and resource sectors.



#### **James Durrant, Project Coordinator**

Mr. Durrant joined South Boulder Mines after a series of operational roles within BHP Billiton. With tertiary qualifications in both mechanical and mining engineering, Mr. Durrant brings project management, organisational design and operational management of large scale open cut mines skills to the organisation.



#### **Tony, Kiernan, Non Executive Director**

Mr Kiernan was previously a commercial lawyer and is currently Chairman of the Australian iron ore producer BC Iron Ltd (ASX:BCI) and a non-executive director of several listed mining companies including Chalice Gold Mines Ltd (ASX: CHN), which has been operating in Eritrea since 2009.



#### Zeray Leake, Country Manager

Mr Leake is a Geologist with over 12 years experience in the development and exploration of potash, gold, base metals and industrial minerals.

Mr Leake previously worked for the Geological Survey of Eritrea.



# Eritrean Mining Investment rules bias early cashflows to the JV

- 1. Accelerated depreciation straight line method over 4 years on all capital and pre-production costs.
- 2. Carrying forward of losses up to 10 years.
- 3. Nominal rate of import duty (0.5%) on all inputs necessary for mining.
- 4. Simple "one stop" licensing system enabling all the formalities for all types of licenses for mining operations to be completed by a single government agency.

