



ASX announcement

29 January 2018

## FEED completion confirms Colluli as the most advanced and economically attractive SOP greenfield development project

- FEED delivers enhanced project economics with considerably higher level of accuracy
- Industry leading capital intensity and first quartile operating costs
- Project level NPV of US\$902M with IRR of 29.9% for Modules I and II
- Completion of FEED is a critical milestone for offtake and debt processes
- The diversification and multi-commodity potential of Colluli provides major additional upside

Table 1: Key Colluli FEED economic estimates and outcomes<sup>1</sup>

	Module I <sup>2</sup>	Module I & II <sup>3,4</sup>
<b>100% of the Project (equity / pre-debt basis)</b>		
Annualised SOP production	472ktpa	944ktpa
Strip ratio (waste:ore)	1.9	2.1
<b>Module I</b> development capital <sup>5</sup>	US\$302M	
Incremental <b>Module II</b> development capital <sup>4,5</sup>		US\$202M
Capital intensity <sup>5</sup>	US\$640/t	US\$534/t
Incremental <b>Module II</b> capital intensity <sup>5</sup>		US\$427/t
Average mine gate cash costs <sup>6</sup>	US\$165/t	US\$149/t
Average total cash costs <sup>6,7</sup>	US\$258/t	US\$242/t
Average annual undiscounted free cash flows <sup>6</sup>	US\$88M	US\$173M
Post tax NPV (10% real)	US\$505M	US\$902M
Post tax IRR	28.1%	29.9%
<b>Module I</b> payback period <sup>8</sup>	3.25 years	
<b>Danakali's 50% share of the Project (post-debt basis)</b>		
Average annual undiscounted free cash flows <sup>6</sup>	US\$43M	US\$85M
Post tax NPV (10% real)	US\$242M	US\$439M
Post tax IRR	29.7%	31.3%

1 Economic estimates and outcomes reported in US\$ real

2 Assumed that Module I is 60% debt / 40% equity funded

3 Module II production expected to commence in year 6

4 Assumed 100% funded from project cash flows and third-party debt

5 Including contingency, excluding sustaining and working capital

6 Average for first 60 years of production

7 Includes mine gate cash costs, product logistics, and royalties

8 Represents payback from date of first production



---

## FEED RESULTS OVERVIEW

**Danakali Limited (ASX: DNK) (Danakali, or the Company)** is pleased to announce the results of the Front End Engineering Design (**FEED**) phase for the Colluli Potash Project (**Colluli, or the Project**), located in Eritrea, East Africa. The Project is 100% owned by the Colluli Mining Share Company (**CMSC**), a 50:50 joint venture between Danakali and the Eritrean National Mining Corporation (**ENAMCO**).

**Colluli is fully permitted** following (i) the signing of the Mining Agreement between CMSC and the Eritrean Ministry of Energy and Mines in 2017 (*ASX announcement 1 February 2017*), and (ii) the subsequent awarding of the requisite Mining Licenses<sup>^</sup> (*ASX announcement 1 February 2017*).

**FEED firmly establishes Colluli as the most progressed, economically attractive, and fundable Sulphate of Potash (SOP) greenfield development project globally.** There is no other known SOP greenfield development project that has completed FEED.

### **FEED provides offtakers and funders with a high level of study detail and accuracy**

- The FEED results provide a higher level of financial certainty to project financiers, further de-risking the investment proposition and underpinning the Financial Model
- Completion of well-defined procurement and supplier lists concludes the pre-requisites for the participation of Export Credit Agencies, which form a key component of the project finance strategy
- FEED provides offtakers with additional confidence on Project certainty and fundability, which will support finalisation of binding bankable offtake agreements

### **FEED carries a high level of accuracy, and is the final study stage before project execution**

- FEED study carries an operating and capital cost accuracy level of  $\pm 10\%$
- Fluor acted as lead consultant during FEED and was supported by a selection of highly qualified, industry recognised consultants with intimate knowledge of the Project obtained in previous study phases
- Optimisation opportunities across the entire mining and infrastructure supply chain were identified and evaluated during FEED and are included in the final assessment
- The majority of the cost estimates are supported by formal vendor/contractor pricing

### **The FEED results reaffirm the outstanding project economics of Colluli**

- Industry leading capital intensity achieved in the DFS (*ASX announcement 30 November 2015*) further reduced as a result of lower development capital requirements for Module I and increased annual production rate
- Forecast first quartile operating costs
- Net Present Value (**NPV**) of US\$902M
- Internal Rate of Return (**IRR**) of 29.9%
- Danakali share of NPV of US\$439M with IRR of 31.3%

### **Modular development approach underpins highly scalable, long life project**

- Module I is expected to produce 472ktpa of premium SOP product
- Module II, commencing production in year 6 of the Project, will increase total SOP production to 944ktpa
- The Project has significant expansion and multi-commodity potential presenting additional value upside
- Expected mine life of approximately 200 years at FEED production rates



**Danakali's Chief Executive Officer, Danny Goeman said:** *"We are extremely happy with the FEED outcomes for Colluli, which are the culmination of a long period of high quality work from our study team and consultants. Colluli is the premier and most progressed SOP greenfield development project globally. It has industry leading capital intensity, forecast first quartile operating costs, and highly attractive economic returns. As such, the FEED results confirm what we already knew, but importantly, provide us with a much greater degree of accuracy and certainty, with key cost and valuation outcomes improving significantly."*

*"The successful completion of FEED, as well as the completion of permitting in 2017, further enhances Danakali and CMSC's ability to finalise binding offtake agreements, advance towards financial close, and execute the Project. We are looking forward to working with our joint venture partners to ensure the successful development of Project Modules I and II, and unlocking the significant expansion and multi-commodity potential of the resource."*

**ENAMCO General Manager, Berhane Habtemariam said:** *"We are very pleased that FEED has been completed and has improved the Project's already highly attractive valuation outcomes. Colluli has the potential to make a significantly positive impact in Eritrea. Our economy and people stand to benefit through considerable revenue generation, the expansion of our mining industry, the development of skills, and the flow-on effects to associated industries. Our joint venture with Danakali continues to achieve its stated goals in a timely and professional manner, we expect this to continue as CMSC focuses on binding offtake, funding, and development in the immediate term."*

<sup>^</sup> CMSC applied for, and were awarded 7 mining licenses which span over 60km<sup>2</sup> of the 100km<sup>2</sup> agreement area, covering the 60 years of production considered in FEED financial modelling; additional licenses can be applied for within the agreement area as required to sustain and/or grow operations

**Figure 1: Colluli processing plant looking out to the run-of-mine pad**





**FEED RESULTS DETAILED HIGHLIGHTS**

**FEED demonstrates markedly improved economics from the DFS**

**Table 2: Key Colluli FEED economic estimates and outcomes, and comparison with DFS<sup>1</sup>**

US\$ real	DFS <sup>2</sup>		FEED		Variance from DFS	
	I <sup>3</sup>	I & II <sup>4,5</sup>	I <sup>3</sup>	I & II <sup>4,5</sup>	I <sup>3</sup>	I & II <sup>4,5</sup>
<b>100% of the Project (equity / pre-debt basis)</b>						
<b>Production</b>						
Annualised SOP production	425ktpa	850ktpa	472ktpa	944ktpa	↑ 11%	↑ 11%
Strip ratio (waste:ore)	1.9	1.9	1.9	2.1	-	↑ 11%
<b>Capital</b>						
Module I development capital <sup>6</sup>	US\$298M		US\$302M		↑ 1%	
Incremental Module II development capital <sup>5,6</sup>		US\$175M		US\$202M		↑ 15%
Capital intensity <sup>6</sup>	US\$701/t	US\$556/t	US\$640/t	US\$534/t	↓ 9%	↓ 4%
Incremental Module II capital intensity <sup>6</sup>		US\$412/t		US\$427/t		↑ 4%
Working capital requirement <sup>7,8</sup>	US\$38M		US\$20M		↓ 47%	
<b>Operating costs</b>						
Average mine gate cash costs <sup>9</sup>	US\$168/t	US\$141/t	US\$165/t	US\$149/t	↓ 2%	↑ 6%
Average total cash costs <sup>9,10</sup>	US\$255/t	US\$227/t	US\$258/t	US\$242/t	↑ 1%	↑ 7%
<b>Revenue and cash flow</b>						
Average forecast SOP price <sup>11</sup>	US\$572/t	US\$572/t	US\$569/t	US\$569/t	↓ 1%	↓ 1%
Cumulative undiscounted free cash flows <sup>12</sup>	US\$4,539M	US\$9,637M	US\$4,944M	US\$10,019M	↑ 9%	↑ 4%
Average annual undiscounted free cash flows <sup>9</sup>	US\$81M	US\$166M	US\$88M	US\$173M	↑ 9%	↑ 4%
<b>Valuation</b>						
Post tax NPV (10% real)	US\$439M	US\$860M	US\$505M	US\$902M	↑ 15%	↑ 5%
Post tax IRR	25.4%	29.0%	28.1%	29.9%	↑ 11%	↑ 3%
Module I payback period	3.5 years		3.25 years		↓ 7%	
<b>Danakali's 50% share of the Project (post-debt basis)</b>						
Post finance NPV (10% real)	US\$206M	US\$415M	US\$242M	US\$439M	↑ 17%	↑ 6%
Post finance IRR	25.2%	29.3%	29.7%	31.3%	↑ 18%	↑ 7%

1 Economic estimates and outcomes reported in US\$ real

2 ASX announcement 30 November 2015

3 Assumed that Module I is 60% debt / 40% equity funded

4 Module II production expected to commence in year 6

5 Assumed Module II is funded by project cash flows and third-party debt

6 Including contingency, excluding sustaining and working capital

7 Module I working capital is provided with reference to the delay from first production to cash receipt from product sales

8 Module II working capital requirements funded from project cash flows

9 Average for first 60 years of production

10 Includes mine gate cash costs, product logistics, and royalties

11 Composite price for Standard (56%) and Granular (44%) SOP products

12 Over first 60 years of production



**Colluli is positively unique**

A unique suite of characteristics that allows for simple, proven, low risk and low-cost mining, processing and logistics.

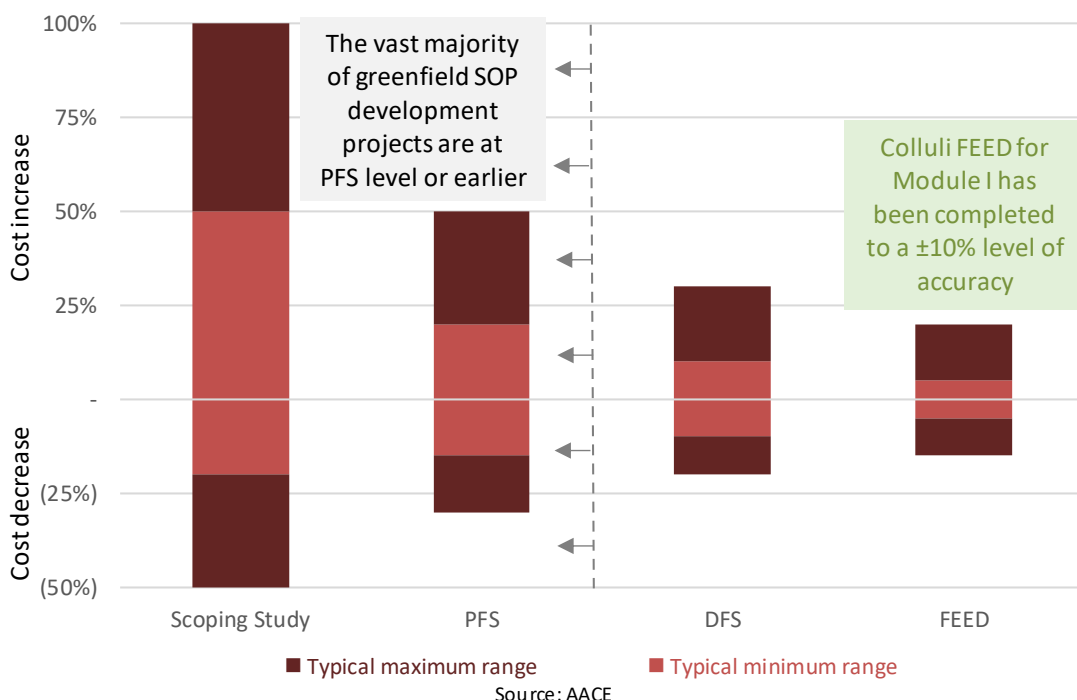


Mining	Processing <i>Crushing</i> → <i>Flotation</i> → <i>Mixing</i> → <i>Drying</i>	Logistics
<ul style="list-style-type: none"> <li>• Massive 1.1Bt Ore Reserve</li> <li>• Shallowest evaporite deposit in the world</li> <li>• Simple, low cost, open-cut mining</li> <li>• Conventional truck and shovel methods utilised, complemented by continuous surface miners</li> </ul>	<ul style="list-style-type: none"> <li>• Simple, energy efficient, commercially-proven processing</li> <li>• Unique and favourable combination of potassium bearing salts</li> <li>• Colluli salt composition ideal for low energy, high yield conversion to SOP at ambient temperatures</li> <li>• No pre-evaporation ponds necessary, reducing capex requirements and time to revenue</li> </ul>	<ul style="list-style-type: none"> <li>• Closest SOP project to a coastline</li> <li>• Favourable logistics unlock product diversification potential</li> <li>• 230km by road to the well-established Massawa port</li> <li>• 75km to Anfile Bay, potential site for future port development</li> </ul>
<p><i>Other SOP greenfield development projects typically face challenges such as depth of ore body, brine complexities, lack of scale, inconsistent grade, high energy processing, extensive evaporation pond requirements, and/or great distances to export facilities</i></p>		

**FEED represents a greater level of accuracy and certainty than the DFS**

Typical accuracy ranges of other study levels are shown in Figure 2, illustrating the advanced stage of Colluli.

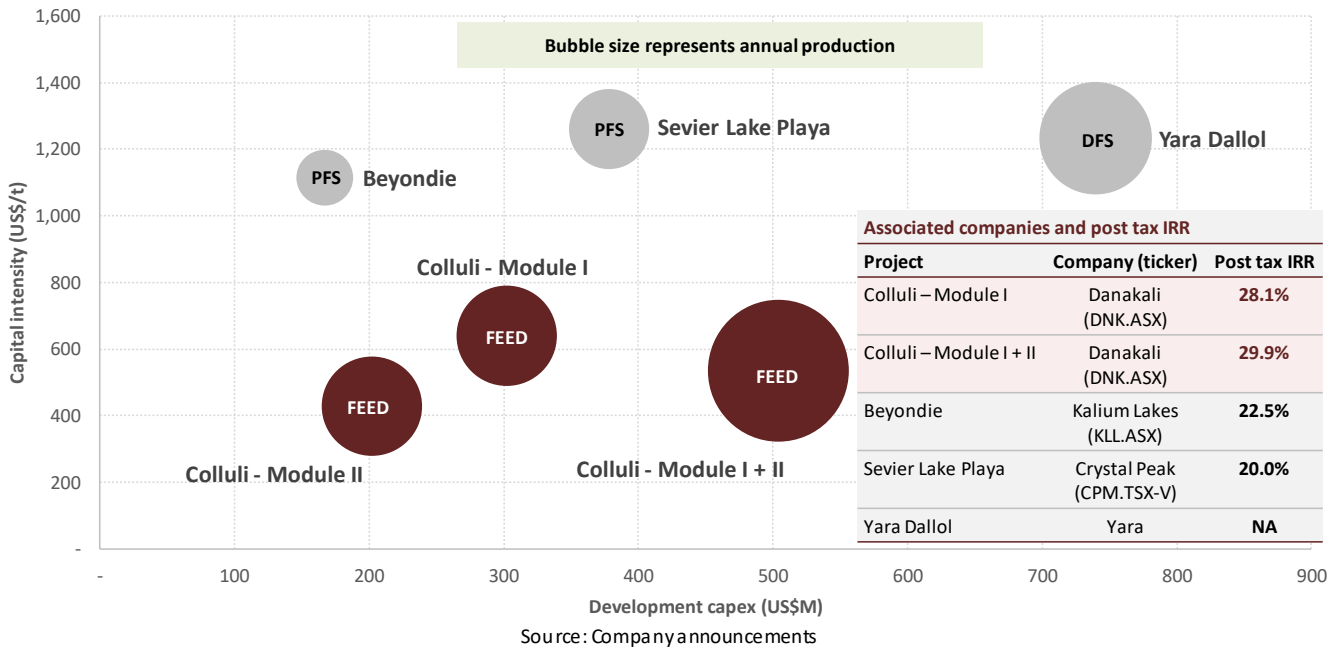
**Figure 2: Typical accuracy levels of mining project study phases**





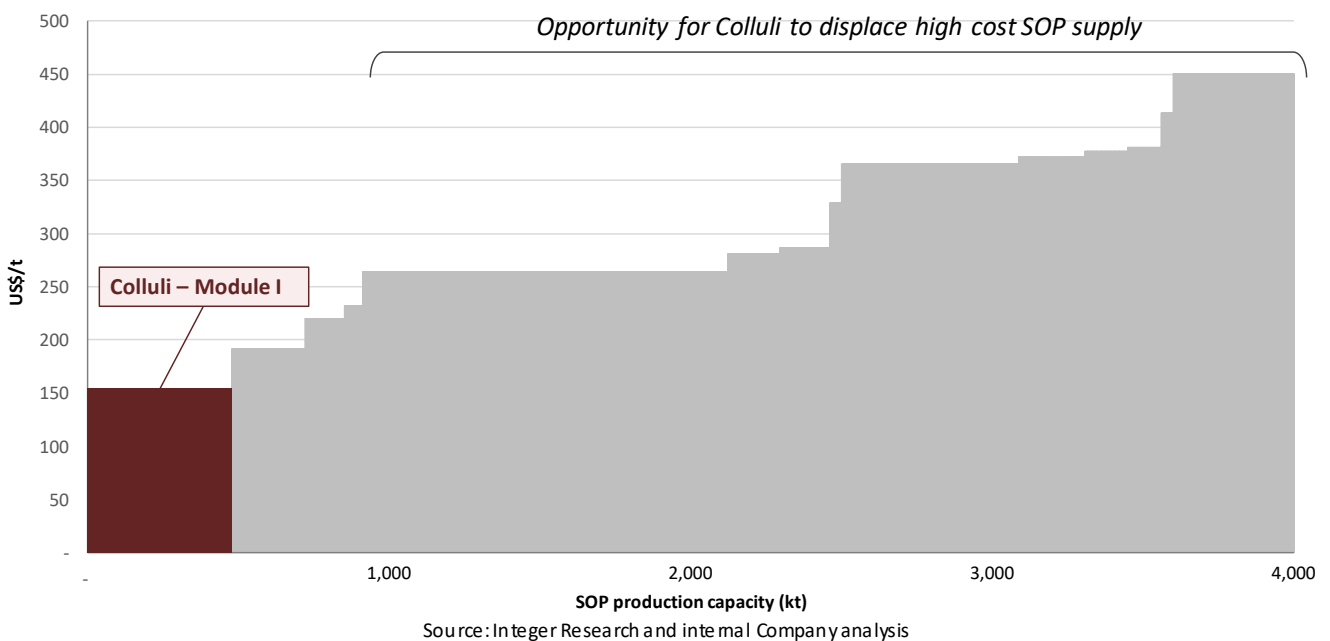
Industry leading economics

Figure 3: Estimated capital intensity, development capex, annual SOP production and IRR for selected global PFS+ SOP development projects



If operating in 2016, Danakali would have been the lowest cost SOP producer outside of China.

Figure 4: Mine gate cash costs outside of China in 2016 (US\$/t)





**Key near term milestones**

Danakali is focused on offtake, funding, and project execution in 2018.

**Table 3: Upcoming Danakali and Colluli milestones**

Workstream	2018 milestones
<b>Offtake</b>	<ul style="list-style-type: none"><li>• Progress negotiations to final binding offtake agreements</li></ul>
<b>EPCM</b>	<ul style="list-style-type: none"><li>• Final negotiations with shortlisted bidders</li></ul>
<b>Mining</b>	<ul style="list-style-type: none"><li>• Final negotiations with shortlisted bidders</li></ul>
<b>Power</b>	<ul style="list-style-type: none"><li>• Final negotiations with Inglett and Stubbs International (ISI) (preferred power provider)</li></ul>
<b>Equity</b>	<ul style="list-style-type: none"><li>• Dual listing on the London Stock Exchange</li></ul>
<b>Debt</b>	<ul style="list-style-type: none"><li>• Finalise arrangements with commercial lenders</li></ul>

See Appendix A for a detailed FEED evaluation (page 8) and Appendix B for the JORC Code 2012 – Table 1, Section 4 (Estimation and Reporting of Ore Reserve) January 2018 update (page 23).

**Figure 5: Colluli processing plant viewed from the run-of-mine pad**



For more information, please contact:

**Danny Goeman**  
Chief Executive Officer  
+61 8 6315 1444

**William Sandover**  
Head of Corporate Development & External Affairs  
+61 499 776 998



---

**APPENDIX A – DETAILED FEED EVALUATION**

Topic	Page
1. Project overview	8
2. FEED team	10
3. Geology	11
4. Development approach	12
5. Mining	13
6. Water logistics	14
7. Processing	14
8. Non-processing infrastructure	15
9. Product logistics	16
10. Environmental and permitting	16
11. Project execution, execution logistics and operations	16
12. Cost estimates	18
13. Financing assumptions	19
14. Economic evaluation	19
15. Potash market overview	21
16. Marketing strategy	22
Technical glossary	22

**1. Project overview**

**Colluli is located in the Danakil Depression region of Eritrea, East Africa.** Colluli is approximately 177km south-east of the capital, Asmara, and 180km from the port of Massawa, which is Eritrea's key import/export facility.

**The Project is a joint venture between ENAMCO and Danakali with each having 50% ownership of the joint venture company, CMSC.** CMSC is responsible for the development of the Project.

**The Danakil Depression is an emerging potash province,** which commences in Eritrea and extends south across the border into Ethiopia. It is one of the largest unexploited potash basins globally; over 6Bt of potassium bearing salts suitable for production of potash fertilisers have been identified in the region to date (*ASX announcement 25 February 2015 and <http://circumminerals.com/resources>*).

**Colluli is located approximately 75km from the Red Sea coast providing unrivalled future logistics potential.** The Project resides on the Eritrean side of the border, giving Colluli a significant advantage relative to all other potash development projects in the Danakil Depression, which need to ship from the Tadjoura Port in Djibouti – over 600km by road from the closest project on the Ethiopian side of the border.

**Colluli boasts the shallowest mineralisation in the Danakil Depression.** Mineralisation commences at just 16m below surface. Consequently, Colluli has significant mining, logistics and, in turn, capital and operating cost





benefits over other potash development projects in the Danakil Depression and other potash development projects globally. The Project also carries a significantly lower level of complexity as a consequence of predictable processing plant feed grade and predictable production rates due to low reliance on ambient conditions.

**Figure 6: Colluli location and logistics**



**Shallow mineralisation makes the resource amenable to open cut mining:** a proven, high productivity mining method. Open cut mining provides higher resource recoveries relative to underground and solution mining methods, is generally safer, and can be more easily expanded.

**The Colluli resource comprises three potassium bearing salts in solid form: Sylvinit, Carnallite and Kainitite.** These salts are suitable for high yield, low energy production of SOP, which is a high-quality potash fertiliser carrying a price premium over the more common Muriate of Potash (**MOP**). SOP is chlorine free and is commonly applied to high value crops such as fruit, vegetables, nuts, and coffee.

**The salt composition in the Danakil Depression provides the ability to produce a suite of potash products that not only includes SOP, but also Sulphate of Potash-Magnesia (SOP-M) and MOP.** Such potash product diversification cannot be achieved by any other potash deposit region in the world.

**The JORC-2012 compliant Mineral Resource for Colluli is estimated at 1.289Bt @ 11% K<sub>2</sub>O for 260Mt of contained SOP equivalent (ASX announcement 25 February 2015).** The JORC-2012 compliant Ore Reserve estimate for Colluli is estimated at 1,100Mt @ 10.5% K<sub>2</sub>O for 203Mt of contained SOP equivalent. The resource remains open to the south-east of Area A and the west of Area B. Refer to Table 4 for a summary of the Mineral Resource estimate and Table 5 for the Ore Reserve estimate. The Measured and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce the Ore Reserves.



**Table 4: Colluli SOP Mineral Resource<sup>1,2</sup>**

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	66	12%	38	11%	10	8%	115	11%
	Carnallite	55	7%	190	9%	6	16%	251	9%
	Kainitite	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%
	Kainitite	48	13%	289	13%	4	13%	341	13%
Sub-total	Sylvinite	90	13%	160	13%	15	9%	265	12%
– Areas A & B	Carnallite	80	7%	303	8%	15	11%	398	8%
	Kainitite	133	12%	488	12%	5	12%	626	12%
<b>Total</b>		<b>303</b>	<b>11%</b>	<b>951</b>	<b>11%</b>	<b>35</b>	<b>10%</b>	<b>1,289</b>	<b>11%</b>

The Colluli SOP Mineral Resource also comprises an 85Mt Kieserite Mineral Resource<sup>1</sup>.

**Table 5: Colluli SOP Ore Reserve<sup>1</sup>**

Occurrence <sup>2</sup>	Proved		Probable		Total		
	Mt	K <sub>2</sub> O equiv.	Mt	K <sub>2</sub> O equiv.	Mt	K <sub>2</sub> O equiv.	K <sub>2</sub> SO <sub>4</sub> equiv. Mt <sup>3</sup>
Sylvinite (KCl.NaCl)	77	15.0%	173	12.1%	250	13.0%	
Carnallite (KCl.MgCl <sub>2</sub> .H <sub>2</sub> O)	77	6.9%	279	7.8%	356	7.6%	
Kainitite (KCl.MgSO <sub>4</sub> .H <sub>2</sub> O)	131	11.8%	363	11.2%	494	11.4%	
<b>Total</b>	<b>285</b>	<b>11.3%</b>	<b>815</b>	<b>10.3%</b>	<b>1,100</b>	<b>10.5%</b>	<b>203</b>

**Table 6: Colluli Rock Salt Mineral Resource<sup>1</sup>**

Classification	Mt	NaCl	K	Mg	CaSO <sub>4</sub>	Insolubles
Measured	28	97.2%	0.05%	0.05%	2.2%	0.23%
Indicated	180	96.6%	0.07%	0.06%	2.3%	0.24%
Inferred	139	97.2%	0.05%	0.05%	1.8%	0.25%
<b>Total</b>	<b>347</b>	<b>96.9%</b>	<b>0.06%</b>	<b>0.05%</b>	<b>2.1%</b>	<b>0.24%</b>

1 ASX announcements 25-Feb-15, 23-Sep-15, 30-Nov-15 and 15-Aug-16

2 The Ore Reserve estimate contains dilutant material; only Sylvite, Carnallite and Kainite mineral species from Sylvinite, Carnallite and Kainitite rock types contribute to recovered product

3 Equivalent K<sub>2</sub>SO<sub>4</sub> (SOP) sourced from Sylvite, Carnallite and Kainite mineral species only, shown prior to the application of processing losses

## 2. FEED team

FEED has delivered a higher level of accuracy of operating and capital costs and increased the level of detailed engineering and design relative to the DFS. Additional geotechnical work was completed at the recovery pond site, site access road, and process plant location. All supporting consultants engaged in the FEED phase were involved in the DFS, providing the process with a high level of specific Colluli expertise and study continuity.

**Table 7: FEED team**

Lead	Key area of focus in FEED
Fluor	<ul style="list-style-type: none"> <li>• FEED engineering lead</li> <li>• Metallurgy</li> <li>• Process and non-process infrastructure</li> <li>• Capital and operating cost estimates</li> </ul>
Supporting consultants	Key area of focus in FEED
AMC Consultants	<ul style="list-style-type: none"> <li>• Mine Geotechnical</li> <li>• Mine design</li> <li>• Mine contract tendering support</li> <li>• Compilation of mining costs</li> <li>• Competent Persons Report and Ore Reserve update</li> </ul>
Knight Piésold	<ul style="list-style-type: none"> <li>• Evaporation ponds and tailings</li> <li>• Infrastructure geotechnical investigations</li> <li>• Hydrogeological investigation and modelling</li> </ul>
Global Potash Solutions and Elemental Engineering	<ul style="list-style-type: none"> <li>• Metallurgy</li> <li>• Processing technical support</li> </ul>
Ausenco	<ul style="list-style-type: none"> <li>• Water abstraction and pipelines</li> </ul>
Braemar ACM	<ul style="list-style-type: none"> <li>• Port capacity, capability, and handling fees, and engagement of shipping lines</li> </ul>
MBS Environmental	<ul style="list-style-type: none"> <li>• Social and environment</li> </ul>

### 3. Geology

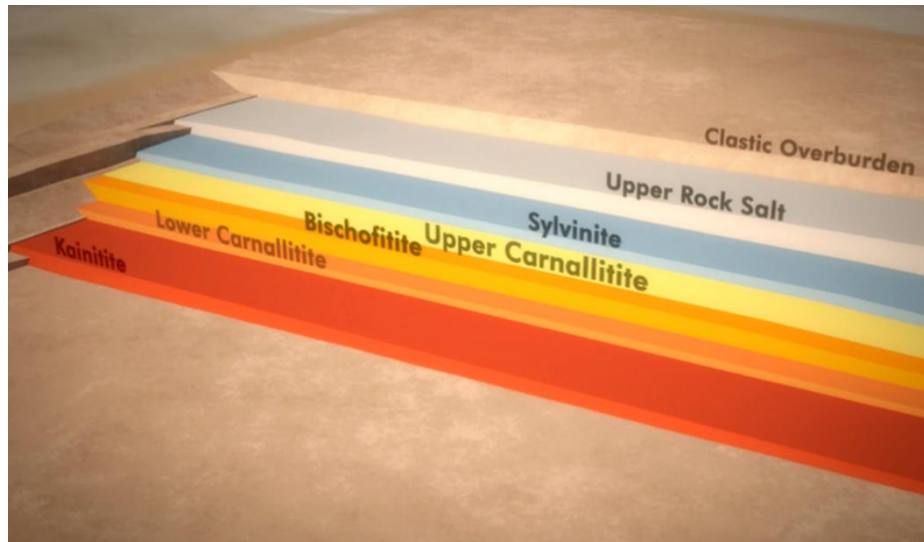
The local geology is dominated by an evaporite sequence, formed when the Red Sea was connected by a seaway to the Danakil Depression. The Colluli potash bearing mineralisation is overlain by clastic sediments ranging in thickness from 10-70m over an area of almost 100km<sup>2</sup> and rock salt with a typical thickness range of 10-30m.

The potash bearing minerals begin with the Sylvinite Member hosting Sylvite (KCl), which is up to 10m thick. Below the Sylvinite Member lies the Intermediate Member comprising of Carnallite (KCl.MgCl<sub>2</sub>.H<sub>2</sub>O) and Bischofite (MgCl<sub>2</sub>.6H<sub>2</sub>O) which vary from 3 to 25m thick. Below the Intermediate Member in the sequence is the Kainitite Member composed of Kainite (KCl.MgSO<sub>4</sub>.2.75H<sub>2</sub>O) approximately 5-15m thick and overlying the Lower Rock Salt which marks the lower extent of the mineralisation.

Refer to Figure 7 for the stratification of the Colluli resource.



**Figure 7: Stratification of the Colluli resource**



#### 4. Development approach

**Colluli will be developed to its full potential by adopting the principles of risk management, resource utilisation and modularity, using the first module as a platform for growth.** The DFS (*ASX announcement 30 November 2015*) ensured that the risks, fundability and economic returns of Module I were appropriately balanced, and successfully pursued optimisation opportunities identified during the Colluli PFS stage (*ASX announcement 4 March 2015*).

The Colluli FEED modules are:

- **Module I** – 472ktpa SOP production
- **Module II** – additional 472ktpa SOP production commencing in year 6

**The massive Colluli Ore Reserve has significant capacity to underpin further expansions** and support decades of growth beyond Modules I and II.

**Colluli has significant diversification potential beyond SOP**, including the option to produce additional potash and salt products such as MOP, SOP-M, kieserite ( $\text{MgSO}_4 \cdot \text{H}_2\text{O}$ ), gypsum ( $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$ ), magnesium chloride ( $\text{MgCl}_2$ ), and rock salt ( $\text{NaCl}$ ).

A JORC-2012 compliant rock salt Mineral Resource of 347Mt @ 96.9% NaCl and a JORC-2012 compliant Kieserite Mineral Resource of 87Mt were announced on 23 September 2015 and 15 August 2016 respectively.

**The Project will consist of the following components:**

- An open pit potash mine located within the Danakil Depression
- Ore processing facilities located at the mine site
- Evaporation ponds located at the mine site
- An upgraded product haulage road connecting the mine site to the coastal road leading to the Port of Massawa
- An 87km desalinated water pipeline from the coast to the mine site



- An accommodation camp and administration facility at the mine site

**Figure 8: Potential mine layout including key project components for Modules I and II**



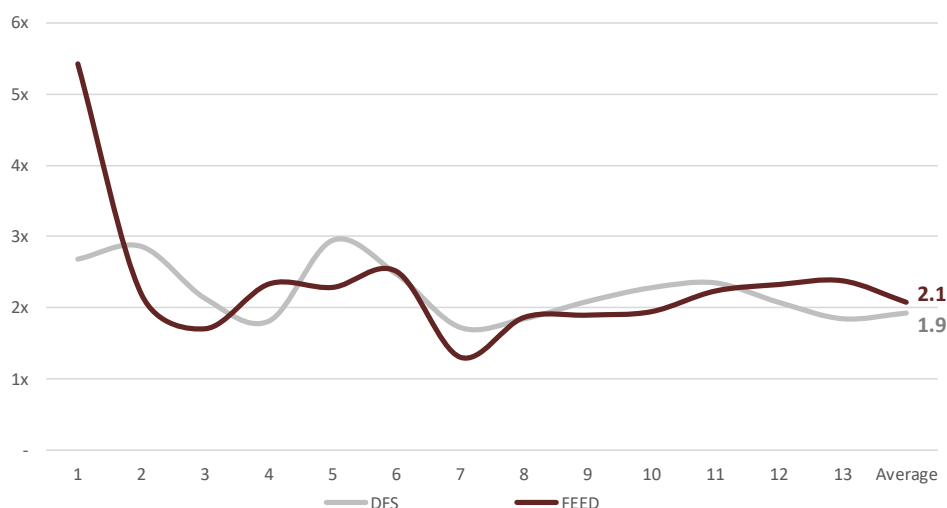
## 5. Mining

The mine will consist of a single open pit developing progressively from the north-east to south-west. The pit will have a progressive working face that provides access to each of the mineralised layers simultaneously. Mining will be conducted by mining contractors using conventional mechanised equipment (including surface miners, excavators, bulldozers and haul trucks) and methods. No drill and blast is required for mining. Mined ore will be transported by truck to a ROM pad adjacent to the processing plant. The ore body consists of three main members being Sylvinitic, Carnallitite and Kainitite which are fed as ore feed into the processing plant and from which the minerals Sylvite, Carnallite and Kainite are extracted and mixed to produce SOP.

**Colluli's shallow mineralisation leads to a low average strip ratio.** The average strip ratio (waste:ore) is closely aligned to the DFS following final optimisation for higher production rates. Figure 9 provides a representation of the mine strip ratio during the first 13 years of production and the average over 60 years.



Figure 9: Strip ratio over time – Module I and II combined scenario<sup>1</sup>



<sup>1</sup> First 13 years of production and average over first 60 years of production

**The overburden contains industrial rock salt, which is extracted at a rate more than 1.8Mtpa.**

Commercialisation of this rock salt is expected to offset a portion of the mining costs in the future. This has not been reflected in FEED.

## 6. Water logistics

Desalinated water will be supplied via a single pipeline from the Water Intake and Treatment Area (WITA) at Anfile Bay providing the Project with a stable and reliable water source.

No further offsite water infrastructure is expected to be required for Module II.

## 7. Processing

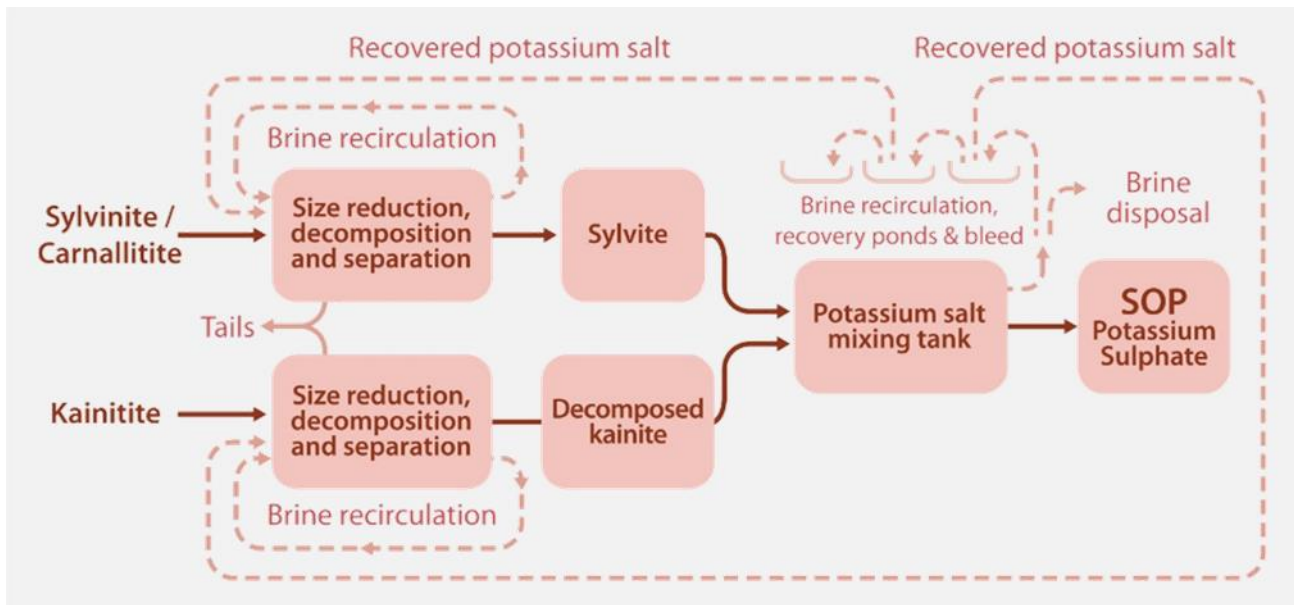
**The processing method to be utilised at Colluli is the most commonly used, low cost process for production of SOP via the addition of Sylvite to Kainite (from the salt Kainitite).** Colluli is one of the few resources globally comprising both Sylvite and Kainite in an ideal ratio to combine using conventional flotation and mixing processes to produce SOP at ambient temperature. Ambient temperature processing, has a positive impact on process yield, and requires significantly lower energy inputs relative to Kainite brine conversion.

**Potassium yields are further improved using recovery ponds which collect brines exiting the processing plant.** Highly favourable ambient conditions within the Danakil Depression provide an environment with extremely high evaporation rates which significantly reduce pond size requirements, and allow rapid recovery of remnant potassium which is recirculated to the processing plant.

**The finalisation of the processing plant is underpinned by an extensive and comprehensive metallurgical test program.** Systematic debottlenecking of the DFS processing plant configuration and metallurgical review liberated an additional 47ktpa of expected SOP output capacity in both Module I and II.



Figure 10: Processing circuit design



## 8. Non-process infrastructure

The scope of infrastructure and services for Colluli is based around prefabricated and modular designs to reduce the number of site-based contractors and personnel during execution, minimise the development timeline, and optimise freight and logistics.

### Key permanent infrastructure facilities include:

- Non-process infrastructure and associated buildings (including main administration building, laboratory, clinic and emergency response building, control room, entrance security, warehouse/ plant workshop, heavy vehicle workshop, and vehicle washdown facility)
- Permanent accommodation camp
- WITA
- Site roads
- Heavy fuel oil (HFO) power supply and distribution
- Main substation from power plant and other substations
- Fuel farm (diesel and HFO)
- Telecommunications
- Water, wastewater and air services (including fire safety water)
- Plant mobile equipment
- Product haul road

### Power

Power generation will follow a Build Own Operate Transfer (BOOT) model. The BOOT model diversifies project risk by utilising the experience of proven operators. Significant progress has been made with ISI, the preferred power supplier for the Project. ISI's power generation solution, designed to match the FEED power requirements, has been integrated into the FEED outcomes. A draft power contract has been developed in collaboration with ISI.



## 9. Product logistics

**The final, dried SOP product from the processing plant will be loaded in shipping containers at the processing plant** before being loaded onto road haulage vehicles for transport to the Port of Massawa.

**The Port of Massawa is located approximately 230km by road from Colluli and has the capability to export both containerised and bulk materials.** Massawa is located on the Red Sea, which connects Europe with the Persian Gulf and countries bordering the Indian and Pacific Oceans, providing Colluli unrivalled access to current and future key SOP markets. The Port currently successfully exports products for existing mines in the country.

**Product exporting options and infrastructure at Anfile Bay (75km from Colluli) will also be subject to further review and has the potential to unlock significant value for Colluli,** by enabling the low-cost export of additional volumes emanating from (i) additional modules, and (ii) the expansion of the product suite (including non-potash materials).

## 10. Environmental and permitting

**Colluli is being developed in accordance with the Equator Principles and relevant World Bank and IFC requirements.** CMSC has undertaken a Social and Environmental Impact Assessment (SEIA) (*ASX announcement 6 December 2016 and <http://www.danakali.com.au/the-colluli-project/seia-public-disclosure>*) and developed specific Social and Environmental Management and Monitoring Plans (SEMP) (*<http://www.danakali.com.au/the-colluli-project/seia-public-disclosure>*) to prevent and minimise adverse impacts. CMSC has also developed a Sustainable Development Framework (*<http://www.danakali.com.au/our-business/corporate-governance>*) and within this has developed policies to guide management of the Project during construction, operations and closure phases, reflecting the Company's and CMSC's philosophy regarding management of environmental and social risks and impacts.

**The Sustainable Development Framework aims to integrate economic, social and environmental aspects throughout the mineral extraction cycle from exploration to mine closure.** The Sustainable Development Framework recognises that ethical conduct, human rights and the Company's and CMSC's impact on the environment directly affect business reputation, risk profile and ultimately the ability to attract and retain the best people and business partners.

**CMSC will ensure all contractors and subcontractors involved with the Project develop and implement an Environmental Social and Safety Management System and Environmental Social and Safety Management Plans** consistent with CMSC policies, and the SEIA and SEMP commitments.

## 11. Project execution, execution logistics and operations

### Project execution

**The Project's execution phase will incorporate engineering design, procurement, construction, management, and commissioning of facilities.** CMSC intend to engage an experienced Engineering, Procurement, Construction & Management (EPCM) provider to manage the Project. The EPCM provider will be responsible for all aspects of design, procurement and construction, management, and pre-commissioning of the complete process plant and associated infrastructure, including provision of all temporary construction facilities. The management aspect will





---

include provision of all engineering, drafting, procurement, contracting, construction and project services to complete the project scope.

**The following major contracts will be awarded by the EPCM:**

- Earlyworks
- Earthworks
- Structural, mechanical, piping, electrical, and instrumentation works
- Laboratory
- Permanent camp and life support
- Freight and logistics

**In addition to the above, CMSC will award the following major contracts directly:**

- Mining operations
- Power station
- Fuel supply (diesel and HFO)
- In-country logistics

**Execution logistics**

**The execution logistics study is based on market intelligence gathered from local administrators such as port authorities, customs officers in Eritrea, local transport authorities, and tendering through logistics contractors.** It also includes detailed route surveys and contractor site visits. Preliminary information has also been obtained from the local transport companies who have experience in handling mining project cargo in Eritrea.

**Massawa Port has been selected as the entry point of equipment and materials required for execution of the Project.** All project equipment and material will be transported 230km overland to Colluli along public roads.

**Operations**

**Initial recruitment for the Project will be capability based, with longer-term training and mentoring plans to upskill the local workforce.** A core group of expatriates with specific skill sets will be required for the management of the operation to ensure that it runs and grows sustainably. Upskilling of the workforce and training and mentoring programs will be undertaken to transition to a predominantly Eritrean workforce as soon as practicable.



## 12. Cost estimates

### Development and working capital

**Table 8: FEED development and working capital estimates<sup>1,2</sup>**

Metric	Module I	Module II
Plants, ponds, and mine development	US\$130M	US\$97M
Supporting infrastructure	US\$80M	US\$37M
Owners costs and EPCM	US\$56M	US\$41M
Contingency	US\$36M	US\$27M
<b>Development capital</b>	<b>US\$302M</b>	<b>US\$202M</b>
Working capital (including working capital contingency) <sup>3</sup>	US\$20M	-
<b>Total capital</b>	<b>US\$322M</b>	<b>US\$202M</b>
<b>Capital intensity (excluding working capital<sup>1</sup>)</b>	<b>US\$640/t</b>	<b>US\$534/t</b>
<b>Incremental Module II capital intensity</b>		<b>US\$427/t</b>

1 Capital estimates are presented in real US\$, June 2017 (rolled forward from US\$, September 2015 used in DFS (ASX announcement 30 November 2015)), to an accuracy of  $\pm 10\%$

2 Estimates have been compiled for the economic period of review (first 60 years of production)

3 Working capital is calculated in reference to the delay from first production to cash receipt from product sales

### Sustaining capital

Sustaining capital has been allocated for further pond and tailings construction, minor mobile equipment, infrastructure upgrades and closure provisioning.

**Table 9: FEED sustaining capital estimates<sup>1,2</sup>**

Metric	Module I	Modules I & II
Years 1-5	US\$34M	US\$37M
Years 5-30	US\$248M	US\$401M
Years 31-60	US\$266M	US\$530M
<b>Total sustaining capital required</b>	<b>US\$548M</b>	<b>US\$968M</b>
<b>Sustaining capital intensity</b>	<b>US\$19/t</b>	<b>US\$18/t</b>

1 Capital estimates are presented in real US\$, June 2017 (rolled forward from US\$, September 2015 used in DFS (ASX announcement 30 November 2015)), to an accuracy of  $\pm 10\%$

2 Estimates have been compiled for the economic period of review (first 60 years of production)

### Operating

The Colluli operating cost estimates include all direct costs to allow mining, production and load-out of SOP production, transport to Massawa port, and loading of containers onto ship liners at Massawa port.

The forecast mine gate cash costs would position Colluli in the bottom quartile of the SOP cost curve. Based on the estimated average composite sale price of US\$569/t SOP, Colluli is expected to deliver an attractive operating margin.

**Table 10: FEED operating cost estimates<sup>1,2</sup>**

Metric	Module I	Modules I & II
Mining	US\$77/t	US\$73/t
Processing	US\$64/t	US\$59/t
Water logistics	US\$2/t	US\$2/t
G&A	US\$22/t	US\$15/t
<b>Mine gate cash costs</b>	<b>US\$165/t</b>	<b>US\$149/t</b>
Product logistics	US\$73/t	US\$73/t
<b>FOB cash costs</b>	<b>US\$238/t</b>	<b>US\$222/t</b>
Royalties	US\$20/t	US\$20/t
<b>Total cash costs</b>	<b>US\$258/t</b>	<b>US\$242/t</b>

1 Operating cost estimates are presented in real US\$, June 2017 (rolled forward from US\$, September 2015 used in DFS (ASX announcement 30 November 2015)), to an accuracy of  $\pm 10\%$

2 Estimates have been compiled for the economic period of review (first 60 years of production)

### 13. Financing assumptions

**Financing of the initial development capital is expected to be a combination of third party debt (up to 70%) raised by CMSC, and a shareholder contribution from Danakali (30%)#.**

**Shareholder contributions relating to expansions after Module I follow CMSC shareholding proportions,** however, these expansions are expected to be funded through the combination of operating cash flows and third-party debt. Consequently, no contribution from Danakali has been assumed after the initial development capital for Module I.

**Danakali's 30% shareholder contribution for Module I comprises two components:**

1. 50% via an interest free loan to CMSC, preferentially repayable from project cash flows; and
2. 50% via equity contribution to the Project

# If 70% third party debt funding is not achieved by CMSC, Danakali is required to fund the shortfall through an interest-bearing loan where the terms of this loan align to the third-party debt raised by CMSC. As with the DFS, FEED assumes a 10% shortfall, taking the estimated sole contribution by Danakali to 40% for Module I. Of this, 25% will be repaid to Danakali via the loans to CMSC, leaving a net shareholder contribution by Danakali of 15%.

### 14. Economic evaluation

**The economic evaluation of Colluli has been completed using a discounted cash flow model.** The financing assumptions have been included in the economic evaluation, and reference has been made to the applicable fiscal regime. All real figures provided in this FEED release are real as of June 2017.

**Further key assumptions for the economic evaluation are:**

- A real average composite SOP price of US\$569/t
- The fiscal regime assumptions align to the relevant current Eritrean tax proclamations; the key assumptions are as follows (no change since DFS (ASX announcement 30 November 2015)):
  - Income tax is calculated at a rate of 38% of taxable profit
  - A mining royalty of 3.5% on gross revenue
  - Straight line tax depreciation over 4 consecutive years
  - Tax losses can be carried forward for 10 years for all plant and equipment
- A real discount rate of 10% was used for the economic evaluation

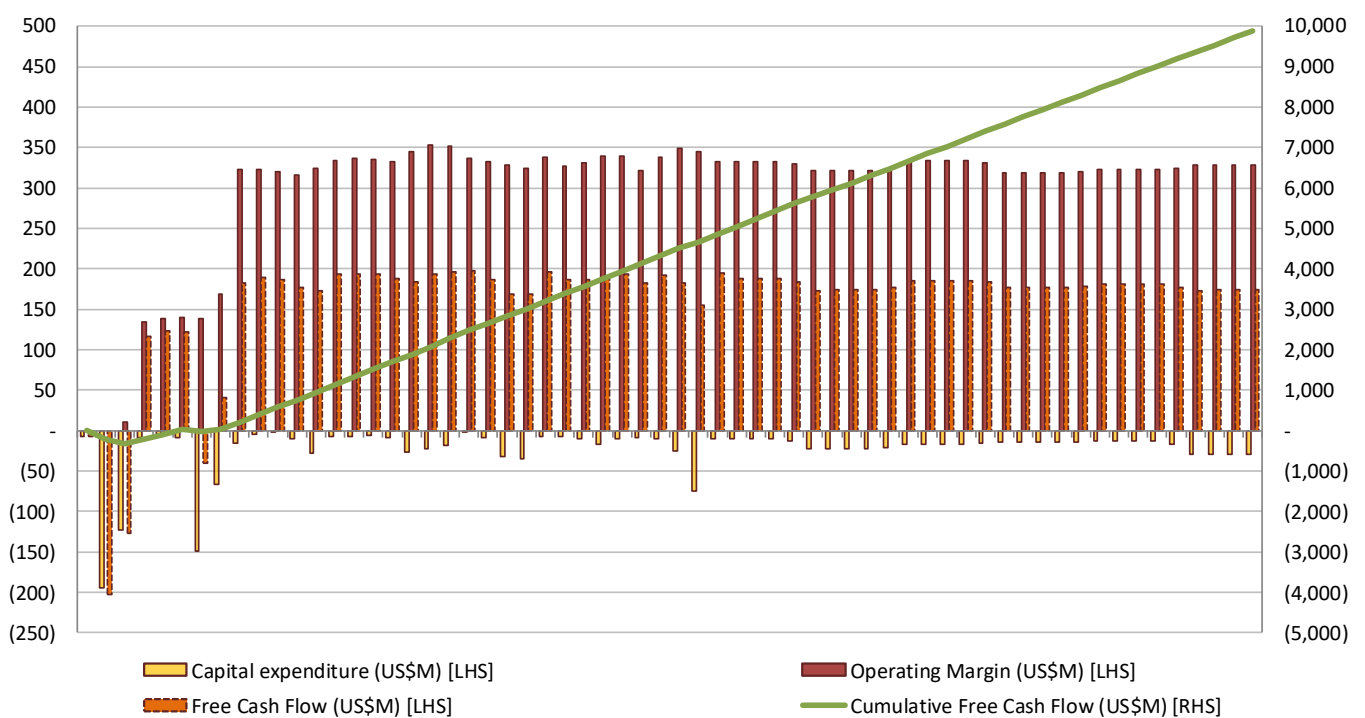


See tables 1 and 2 for economic outcome summaries.

### Cash flow analysis

Over US\$10bn of undiscounted free cash flows will be generated by the Project in Modules I and II across the first 60 years of production.

Figure 11: Cash flows during development and first 60 years of production



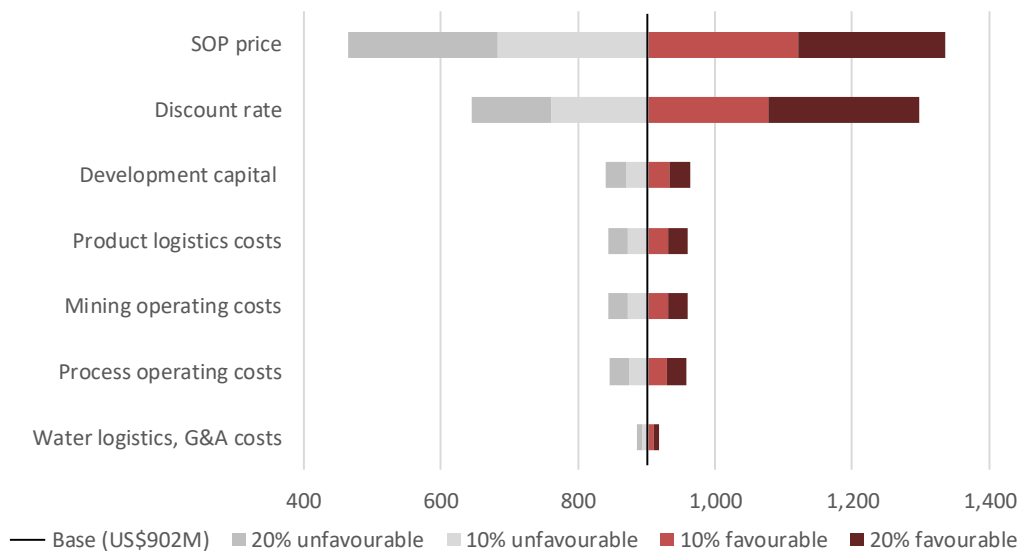
### NPV sensitivities

The economic outcomes for Colluli are sensitive to movements in SOP prices. The analysis used to derive the outlook for the SOP market underpinning the price used in modelling has been robust, including an extensive benchmarking process using latest available industry information and employing leading SOP expertise.

The Project remains economic through a range of sensitivities ( $\pm 20\%$ ) against SOP prices, development capital, operating costs, and discount rates.



Figure 12: NPV sensitivity analysis (US\$M)



## 15. Potash market overview

**SOP prices command a premium over MOP in part because of its suitability for application on higher-value chloride sensitive crops and lack of primary supply.** SOP is generated by either primary or secondary production processes. Primary production occurs directly from suitable economically exploitable resources. These resources are geologically scarce and currently insufficient to meet demand outside of China. The demand shortfall is supplemented by secondary production which involves the conversion of MOP to SOP by adding sulphuric acid in a high cost thermal conversion process (the **Mannheim Process**). Over 50% of the world's SOP supply is produced this way (source: Integer Research, Danakali analysis), generating a price floor to the advantage of primary producers who tend to have significantly lower production costs. Historically, SOP prices command a price premium over MOP and have increased to over US\$270/t in the last 3 years (source: Integer Research, Danakali analysis).

**There has been limited SOP supply growth outside China.** Expandability of existing operations outside of China is constrained and there are limited greenfield developments for primary production of SOP at an advanced stage. The SOP market outside of China is likely to become increasingly undersupplied in the coming years without capacity investment.

**There is also a limit in the extent to which existing secondary producers can increase output to service growing demand, due to limits on output of co-products.** Secondary producers of SOP can only produce as much SOP as the by-product hydrochloric acid (HCl) they can dispose of. For every 1t of SOP produced via the Mannheim method, 1.2t of HCl is produced. HCl is costly to handle and transport, and generally oversupplied. In some cases, HCl disposal can result in negative values for producers making some secondary SOP production unprofitable.

**SOP's growth fundamentals are underpinned by four key drivers: global population growth, reduction in arable land, changing dietary preferences and under-application in developing countries.** Global demand outside of China is expected to be driven particularly from Latin America, South Asia, Africa, and the fertiliser producing countries in West Europe (source: Integer Research).



**There is significant upside potential in the SOP market if India changes its fertiliser pricing policy.** India is the second largest SOP crop growing country in the world after China, but currently utilises very little SOP due to the fertiliser subsidy scheme which applies to MOP and drives irrational purchasing behaviour (currently MOP in India is heavily subsidised). The global SOP market has a potential size far greater than current consumption if application rates increase to levels comparable to those applied in the US market (source: Integer Research).

## 16. Marketing strategy

**Danakali's marketing strategy is to maximise the value of the product portfolio by engaging experienced SOP distributors, traders and end-users, tasked with achieving the highest possible netback price for each tonne of SOP sold.** Danakali continues to progress this strategy on behalf of CMSC.

**The Company is well advanced in its commercial discussions;** moving towards binding offtake agreements with prominent offtake parties in Europe and the Middle East. Industry interest in securing SOP offtake remains high, and, as previously disclosed, the aggregate offtake volumes sought by parties far exceeds the Company's Module 1 production forecast of 472ktpa.

## Technical glossary

Term	Meaning
<b>BOOT</b>	<ul style="list-style-type: none"> <li>Build Own Operate Transfer</li> </ul>
<b>CMSC</b>	<ul style="list-style-type: none"> <li>Colluli Mining Share Company, the 50:50 joint venture vehicle owned by Danakali and ENAMCO that 100% owns Colluli</li> </ul>
<b>DFS</b>	<ul style="list-style-type: none"> <li>Definitive Feasibility Study</li> </ul>
<b>ENAMCO</b>	<ul style="list-style-type: none"> <li>The Eritrean government owned Eritrean National Mining Company (owns 50% of CMSC)</li> </ul>
<b>EPCM</b>	<ul style="list-style-type: none"> <li>Engineering, Procurement, Construction &amp; Management</li> </ul>
<b>ESSMS</b>	<ul style="list-style-type: none"> <li>Environmental Social and Safety Management System</li> </ul>
<b>ESSMP</b>	<ul style="list-style-type: none"> <li>Environmental Social and Safety Management Plans</li> </ul>
<b>FEED</b>	<ul style="list-style-type: none"> <li>Front End Engineering Design</li> </ul>
<b>FOB</b>	<ul style="list-style-type: none"> <li>Free On Board, denoting the cash costs to get product to port</li> </ul>
<b>HCl</b>	<ul style="list-style-type: none"> <li>Hydrochloric acid</li> </ul>
<b>HFO</b>	<ul style="list-style-type: none"> <li>Heavy fuel oil</li> </ul>
<b>IRR</b>	<ul style="list-style-type: none"> <li>Internal Rate of Return</li> </ul>
<b>ISI</b>	<ul style="list-style-type: none"> <li>Inglett &amp; Stubbs International, Colluli's preferred power provider</li> </ul>
<b>Mannheim Process</b>	<ul style="list-style-type: none"> <li>A SOP secondary production technique which involves the conversion of MOP to SOP by adding sulphuric acid in a high cost thermal conversion process</li> </ul>
<b>MOP</b>	<ul style="list-style-type: none"> <li>Muriate of Potash (KCl)</li> </ul>
<b>NPV</b>	<ul style="list-style-type: none"> <li>Net Present Value</li> </ul>
<b>PFS</b>	<ul style="list-style-type: none"> <li>Pre-Feasibility Study</li> </ul>
<b>SEIA</b>	<ul style="list-style-type: none"> <li>Social and Environmental Impact Assessment</li> </ul>
<b>SEMP</b>	<ul style="list-style-type: none"> <li>Social and Environmental Management and Monitoring Plans</li> </ul>
<b>SOP</b>	<ul style="list-style-type: none"> <li>Sulphate of Potash (<math>K_2SO_4</math>)</li> </ul>
<b>SOP-M</b>	<ul style="list-style-type: none"> <li>Sulphate of Potash Magnesia (<math>K_2SO_4 \cdot MgSO_4 \cdot 4H_2O</math>)</li> </ul>
<b>WITA</b>	<ul style="list-style-type: none"> <li>Water Intake and Treatment Area, and the associated offshore and onshore pipelines and reverse osmosis plant</li> </ul>



**APPENDIX B – JORC CODE 2012 – TABLE 1, SECTION 4**

**Section 4 – Estimation and Reporting of Ore Reserves**

(Criteria listed in Section 1, and where relevant in Sections 2 and 3 of the JORC Code 2012, also apply to this section)

*The Colluli Ore Reserve estimate, as at 29 January 2018, is based on a project configuration comprising two processing modules and off-site water infrastructure to support the site water requirements. An alternative option has been investigated where water is supplied for the second plant module (Module II) from the project site. This alternative option yields improved project economics demonstrating further upside potential, but is not the basis of this Ore Reserve estimate.*

Criteria	Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	<ul style="list-style-type: none"> <li>Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.</li> <li>Clear statements as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.</li> </ul>	<ul style="list-style-type: none"> <li>Ore Reserve estimate based on the Mineral Resource reported by AMC in the report “Colluli Mineral Resource Estimate”, 16 March 2015. Refer to South Boulder Mines Ltd (now Danakali Ltd) ASX release 25 February 2015 for the updated Colluli Mineral Resource estimate, “Colluli Review Delivers Mineral Resource Estimate of 1.289Bt” (website: <a href="http://www.asx.com.au/asxpdf/20150225/pdf/42wv88cwpjmtkh.pdf">http://www.asx.com.au/asxpdf/20150225/pdf/42wv88cwpjmtkh.pdf</a>)</li> <li>Colluli open pit Ore Reserve based on Measured and Indicated Mineral Resources of 1,255 Mt @ 11% K2O, comprising:               <ul style="list-style-type: none"> <li>Sylvinite rock unit: 250 Mt @ 13% K2O</li> <li>Camallite rock unit: 383 Mt @ 8% K2O</li> <li>Kainite rock unit: 621 Mt @ 12% K2O</li> </ul> </li> <li>Ore Reserve based on 3D resource block models “mdcok_a2.dm” for Area A and “mdcok_b2.dm” for Area B, developed in January 2015 from geostatistical assessment of predominantly diamond drillhole sample results.</li> <li>Mineral Resource converted to Ore Reserve by developing diluted resource model and applying pit optimization and mine scheduling to determine economically viable blocks to recover and process.</li> <li>The Mineral Resources are inclusive of Mineral Resources modified to produce Ore Reserves that can be economically mined.</li> </ul>
Site visits	<ul style="list-style-type: none"> <li>Comment on any site visits undertaken by the Competent Person and the outcome of those visits.</li> <li>If no site visits have been undertaken indicate why this is the case.</li> </ul>	<ul style="list-style-type: none"> <li>The Competent Person for Ore Reserves completed a site inspection of the Colluli project in February 2015 and viewed the proposed mine, process and camp infrastructure, and also:               <ul style="list-style-type: none"> <li>Assessed data collection methods and techniques</li> <li>Inspected the proposed port site at Massawa and the product haulage route</li> <li>Visited communities nearest the project site.</li> </ul> </li> </ul>
Study status	<ul style="list-style-type: none"> <li>The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.</li> <li>The Code requires that a study to at least pre-feasibility study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.</li> </ul>	<ul style="list-style-type: none"> <li>Colluli studied to Feasibility Study (FS) standard. FS sometimes referred to as a Definitive Feasibility Study (DFS).</li> <li>Additional Front-End Engineering Design (FEED) study completed to advance the Project definition to a level of development that supports a capital cost estimate of ±10% level of accuracy.</li> <li>Construction at Colluli is yet to commence.</li> <li>The mine plan is technically achievable given the assumptions used as the basis for the project.</li> <li>The project is economically viable when considering the expected revenues and costs to achieve those revenues, assuming a project commissioning date in Quarter 3, 2020.</li> <li>Material Modifying Factors were considered.</li> </ul>
Cut-off parameters	<ul style="list-style-type: none"> <li>The basis of the cut-off grade(s) or quality parameters applied.</li> </ul>	<ul style="list-style-type: none"> <li>Breakeven processing cut-off grade used for Ore Reserve estimation.</li> <li>Cut-off grade calculated using:               <ul style="list-style-type: none"> <li>Adopted long-term SOP price of US\$567/t product was used in mine planning. Financial modelling was subsequently completed using an SOP price of US\$569/t product. Cut-off parameters were not adjusted because the difference in total ore tonnes at each price is negligible (less than 0.02%).</li> </ul> </li> </ul>



Criteria	Explanation	Commentary
		<ul style="list-style-type: none"> <li>— Processing, administration, overhead and associated sustaining capital cost of US\$15.20/t processed.</li> <li>— Product logistics and associated sustaining capital cost, and water logistics of US\$75.34/t product.</li> <li>— Ore mining differential cost of US\$2.77/bcm (ore related mining costs that are additional to waste mining costs).</li> <li>— Royalty costs of 3.5% of revenue.</li> <li>— Process recovery of 85% for K+ and SO42- from sylvite, carnallite and kainite mineral species hosted within Sylvinitic, Carnallitic and Kainitic rock units.</li> <li>— Costs for processing plant production rate of 944 ktpa of SOP.</li> </ul>
Mining factors or assumptions	<ul style="list-style-type: none"> <li>• The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimization or by preliminary or detailed design).</li> <li>• The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.</li> <li>• The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc.), grade control and pre-production drilling.</li> <li>• The major assumptions made and Mineral Resource model used for pit and stope optimization (if appropriate).</li> <li>• The mining dilution factors used.</li> <li>• The mining recovery factors used.</li> <li>• Any minimum mining widths used.</li> <li>• The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.</li> <li>• The infrastructure requirements of the selected mining methods.</li> </ul>	<ul style="list-style-type: none"> <li>• Open pit mining method:               <ul style="list-style-type: none"> <li>— For potash and rock salt – 110 t class surface miners direct loading 90 t class rear dump trucks. Method commonly used in potash and phosphate open pit operations and is well understood. Similar continuous miner technology is used in underground potash and phosphate mines.</li> <li>— Clastic overburden and bischofite – 110 t class excavators and 90 t class rear dump trucks. Clastic overburden pushed down to excavators by 50 t track bulldozers. Method commonly used in open pit operations and well understood.</li> </ul> </li> <li>• Choice of mining method to enable the selective extraction of the potash ore units, minimising mining dilution and ore loss, and eliminating the requirement for drill and blast. Excavators utilised for bulk waste movement. Staggered benches in the pit development to level stripping ratio over the mine-life, enhance project economics and provide consistent plant feed.</li> <li>• Optimum pit limits determined using Geovia Leuchs-Grossman computer software given the project assumptions.</li> <li>• Process plant feed targets maintained in the mine schedule using Minemax Scheduler mine scheduling software.</li> <li>• Pit designs developed using Datamine computer software.</li> <li>• Geotechnical design parameters applied in pit design supported by analyses of laboratory testing of drill samples:               <ul style="list-style-type: none"> <li>— Clastic overburden: Batter angle of 23o to 15o for slope heights ranging in height up to 10m to 50m. Berm width of 40m at the toe of the clastic overburden, located in rock salt.</li> <li>— Carnallite and Bischofite: Batter angle of 20o, berm width of 8m, and maximum batter height of 25m.</li> <li>— All other potash units and rock salt: Batter angle of 70o, berm width of 8m, and maximum batter height of 20m.</li> </ul> </li> <li>• Pit designs developed for two scenarios:               <ul style="list-style-type: none"> <li>— Detailed pit design to provide inventory for the period of economic assessment.</li> <li>— Life of mine pit designs for Ore Reserve estimation purposes, based on the final pit limits from pit optimisation. Detailed design for Area B not completed as it is not expected to be mined for approximately 80 to 90 years. Instead an average overall pit slope angle of 19° was applied in Area B, based on the overall slope angle resulting from the Area A detailed design.</li> </ul> </li> <li>• Mineral Resource model assumptions detailed in Section 3, Table 1. Refer to South Boulder Mines Ltd (later Danakali Ltd) ASX release 25 February 2015 for the updated Colluli Mineral Resource estimate, “Colluli Review Delivers Mineral Resource Estimate of 1.289Bt” (website: <a href="http://www.asx.com.au/asxpdf/20150225/pdf/42wv88cwpjmtk.pdf">http://www.asx.com.au/asxpdf/20150225/pdf/42wv88cwpjmtk.pdf</a>).</li> <li>• Production schedule based on 944 ktpa SOP production, to give a mine life of approximately of 190 years. Life of mine average plant throughput rate is 5.8 Mtpa and the life of mine average mining rate is 30 Mtpa.</li> <li>• Colluli area topography is characterized by a flat salt plain in the area of mineralisation, bordered by an anhydrite ridge approximately 20m above the salt plain. All pits, dumps and roads designed to FS standard to ensure designs practically achievable.</li> <li>• 0.3 m “skin” of dilution included a teach ore to waste contact. Dilutant acquires the grade of the underlying resource model block. Result is inclusion of approximately 7.5% dilutant at a grade of 3.7% K2O, and ore loss of 0.6% at a grade of 4.1% K2O, for a net increase of 6.9% in ore tonnes and an increase of 2.3% in contained K2O, based on the findings of the FS.</li> </ul>





Criteria	Explanation	Commentary
		<ul style="list-style-type: none"> <li>• Minimum mining width of 80m was generally applied in the detailed design of mining panels.</li> <li>• Inferred Mineral Resources were considered as waste for optimization and financial evaluations.</li> <li>• Mine waste stored in both in-pit and ex-pit waste storage landforms.</li> <li>• Infrastructure included in the mine plan includes dewatering facilities, heavy vehicle workshop, administration facilities and supporting communication and computing facilities.</li> </ul>
<p>Metallurgical factors or assumptions</p>	<ul style="list-style-type: none"> <li>• The metallurgical process proposed and the appropriateness of that process to the style of mineralization.</li> <li>• Whether the metallurgical process is well-tested technology or novel in nature.</li> <li>• The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.</li> <li>• Any assumptions or allowances made for deleterious elements.</li> <li>• The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.</li> <li>• For minerals that are defined by a specification, has the Ore Reserve estimation been based on the appropriate mineralogy to meet the specifications?</li> </ul>	<ul style="list-style-type: none"> <li>• The Colluli process plant flowsheet combines steps that are individually well established for potash ores, but the detail of the process flowsheet is commercially sensitive. Details are contained in the DFS and FEED documents and have been reviewed by an expert to the satisfaction of the Competent Person.</li> <li>• The process uses the combination of salts in the orebody to produce potassium sulphate (SOP).</li> <li>• Process brine will be treated in evaporation ponds to precipitate potassium bearing salts which will be recycled to the plant for recovery.</li> <li>• The SOP product will be dried and sized to produce granular, standard, and potentially soluble, SOP products which will be shipped for export through the port of Massawa.</li> <li>• The overall process flow sheet includes eight main areas:             <ul style="list-style-type: none"> <li>– Ore receipt, secondary crushing, ore storage and reclaim.</li> <li>– Ore pulping and de-slime.</li> <li>– Sylvinite and Caillite processing.</li> <li>– Kainite processing.</li> <li>– Process and waste storage ponds with recycle of selected streams.</li> <li>– SOP production.</li> <li>– SOP drying, sizing and compaction for SOP products.</li> <li>– Product load-out and haulage.</li> </ul> </li> <li>• The proposed metallurgical process is well understood and appropriate for the deposit. The processing method is the most commonly used, low cost process for the production of potassium sulphate via the addition of potassium chloride (sylvite) with kainite from the kainite. Kainite represents approximately 50% of the Colluli resource with the remaining salts comprising sylvinite and caillite which are commonly used for the production of potassium chloride. Using these well understood processing principles, the ore containing sylvite and caillite can be decomposed, and then recombined with decomposed kainite to convert the potassium chlorides to potassium sulphate.</li> <li>• Bench scale metallurgical test work and pilot testing was completed to determine:             <ul style="list-style-type: none"> <li>– Chemical and mineral analysis of the samples</li> <li>– Sylvinite characteristics (clay content, liberation, flotation ability).</li> <li>– Kainite characteristics (clay content, liberation, flotation ability).</li> <li>– Decomposition rates and retention times.</li> <li>– Feed to brine ratios.</li> <li>– Decomposition ratios.</li> <li>– Precipitate sizing.</li> <li>– Pond evaporation tests.</li> <li>– Alternate flotation methods.</li> <li>– Sensitivity to kainite grade fluctuations</li> <li>– Sensitivity to decomposition water quality</li> <li>– Caking potential and anti-caking agents</li> <li>– Compaction of raw SOP in to product size fractions</li> </ul> </li> <li>• Geological domaining considered in metallurgical testwork, which was carried out separately for sylvinite, caillite, kainite rock types where appropriate. Mineralogy also considered.</li> <li>• The metallurgical test work samples are representative of mining schedules and the DFS and FEED level of economic assessment.</li> <li>• Overall metallurgical recovery factor of 85% is estimated for K+ and SO42- from sylvite, caillite and kainite mineral species hosted within Sylvinite, Caillite and Kainite rock units.</li> <li>• Process flowsheet and metallurgical assumptions based on testwork of diamond drilling samples and confirmed by pilot plant testwork which successfully demonstrated production of SOP from Colluli ore.</li> <li>• Pilot plant tests produced over 100 kg of SOP at over 96% purity compared to</li> </ul>



Criteria	Explanation	Commentary
Environmental	<ul style="list-style-type: none"> <li>The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.</li> </ul>	<p>typical industry product purity of 94%. Chloride levels were less than 0.1%, lower than existing producers which show chloride levels at approximately 0.5%. Results repeatable with a diverse range of feed material.</p> <ul style="list-style-type: none"> <li>Social and Environment Impact Assessment (SEIA) documentation has been prepared by the consulting company MBS Environmental (MBS) and DNK.</li> <li>SEIA is approved by the Eritrean Ministry of Energy and Mines.</li> <li>Eritrea is signatory to a number of international agreements and treaties which have been taken into consideration in the planning and development of the project.</li> <li>Mine waste material characterisation is complete. All mine waste demonstrated low potential for acid mine drainage. Water leachate analysis showed very low levels of environmentally significant metals and metalloids.</li> <li>Physical and chemical characterisation of process waste is complete. Process wastes are not anticipated to have any acid mine drainage potential or to generate environmentally significant levels of leachable trace metals and metalloids.</li> <li>None of the infrastructure for the project will be located on agricultural or residential land.</li> </ul>
Infrastructure	<ul style="list-style-type: none"> <li>The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.</li> </ul>	<ul style="list-style-type: none"> <li>Colluli Project is located in the Danakil region of Eritrea approximately 350 km by road south-east of the capital city, Asmara, and 230 km by road from the port of Massawa.</li> <li>Colluli is a greenfield project comprising the mine and process facilities at the Colluli site, and a seawater abstraction and desalination plant at Anfile Bay.</li> <li>Existing access, infrastructure and services include:               <ul style="list-style-type: none"> <li>Air travel to Eritrea via an international airport in Asmara.</li> <li>Shipping via the Red Sea port at Massawa.</li> <li>Exploration camp at Colluli.</li> </ul> </li> <li>Colluli is characterised by a very dry and hot climate, however rain fall intensity during storms can be high.</li> <li>All infrastructure and equipment will be designed for climatic conditions.</li> <li>Colluli is not connected to the national power grid. Power at the mine site will be from a heavy fuel oil onsite power plant providing an 11 kV supply which will be stepped down to lower voltages as required. Distribution will be via both underground and overhead power lines.</li> <li>Product export will be facilitated through the existing port of Massawa with product bulk loaded into twenty-foot equivalent (TEU) containers.</li> <li>The Colluli accommodation camp will be located at the mine site and will provide accommodation for all personnel. The camp will contain mess facilities, laundry, recreation facilities, and camp administration and maintenance buildings.</li> <li>Existing Colluli access road between Marsa Fatuma and the Colluli site will be upgraded as part of project execution.</li> <li>Water for all areas of operations will be sourced from saline water sources at site and from the sea at Anfile Bay and pumped via dedicated pipelines to Colluli.</li> <li>The desalination process at Anfile Bay will employ reverse osmosis.</li> <li>Sewage from the accommodation camp and plant ablutions will be treated in a package sewage treatment plant. Waste oils will be used as fuel in the product dryer. Wherever possible, solid wastes will be recycled.</li> <li>The process requires evaporation ponds and tailings storage facilities located on the saltpan.</li> <li>Surface water and drainage: the mine area is located between the Sa'riga and Galli-Colluli rivers. Seasonal discharges from these river systems to the saltpan will be mitigated using diversion bunds designed to divert surface water away from critical mine areas whilst minimising downstream impacts.</li> <li>Site buildings will be fit-for-purpose and will include a main administration building, a clinic and emergency response building, workshops, warehouse, reagents storage compound, ablution blocks and crib rooms, laboratory and gatehouse. A helipad is available if required.</li> <li>Fuel for mining equipment and power generation will be stored in bunded steel tanks providing ten day's supply.</li> <li>Communications will comprise a site radio system, process controls, and a VSAT satellite link for voice and data connection. The project area is covered by the national mobile network.</li> <li>Local staff will be employed wherever possible, in conjunction with African and</li> </ul>



Criteria	Explanation	Commentary
Costs	<ul style="list-style-type: none"> <li>The derivation of, or assumptions made, regarding projected capital costs in the study.</li> <li>The methodology used to estimate operating costs.</li> <li>Allowances made for the content of deleterious elements.</li> <li>The source of exchange rates used in the study.</li> <li>Derivation of transportation charges.</li> <li>The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.</li> <li>The allowances made for royalties payable, both Government and private.</li> </ul>	<p>international expatriates. Camp facilities will be provided for all staff with buses used for staff transport to Asmara or nearby major centres.</p> <ul style="list-style-type: none"> <li>Capital costs estimated from first principles by specialist consultants. The estimates assumed:               <ul style="list-style-type: none"> <li>EPCM contract strategy</li> <li>New equipment prices for all fixed infrastructure.</li> <li>Competitive market pricing from local and international contractors</li> <li>Factored estimates using known costs from previous projects.</li> <li>Individual assessment in accordance with the preliminary design drawings and material take offs (MTO) based on drawings, structured to the Work Breakdown Structure (WBS) by plant areas and disciplines and a combination of market driven and in-house pricing applied to the capex line items</li> </ul> </li> <li>Development capital is estimated at US\$322M for Phase I and includes mine development capital and working capital. An additional US\$245M will be spent in Years 4 and 5 for the Phase II expansion.</li> <li>Phase 2 development capital includes off site water infrastructure to support the water requirements of module 2. An alternative option has been investigated which supplies the water requirements for module 2 from the project site. This alternative option realises improved project economics but is not the basis of the Ore Reserve estimate.</li> <li>Capital and operating costs presented in US dollars as at June 2017 to an accuracy of +/- 10%.</li> <li>Process operating costs developed from first principles analysis of fixed costs (labour, G&amp;A, infrastructure) and variable costs associated with power and consumables.</li> <li>Mine operating costs developed from first principles, on a contractor mining basis, to consider the equipment productivity expected for each bench in the design and the unit costs to be applied to the equipment. Costs based on mining contract tender for the first 5 years of operation and extrapolated from year 6 of production onwards.</li> <li>Average unit operating costs (Includes mine gate costs, product logistics and royalties) for the period of economic assessment are US\$242 per tonne of SOP produced.</li> <li>Exchange-rate assumptions taken from the XE.com website dated 1 June 2017. Exchange rate assumptions:               <ul style="list-style-type: none"> <li>AUD1.352 to USD 1.00</li> <li>ERN15.356 to USD 1.00</li> <li>EUR0.889 to USD 1.00</li> <li>CNY6.857 to USD 1.00</li> <li>ZAR13.12 to USD 1.00</li> </ul> </li> <li>Transport costs were quoted by an Eritrean logistics company. Massawa port handling fees were applied. SOP is assumed to be sold free on board (FOB) with no allowance for post-shiploading costs.</li> <li>Processing costs estimated from first principles. Final product requires no further treatment or refining.</li> <li>Royalty of 3.5% of revenue, payable to the Eritrean government, included in the financial evaluation.</li> </ul>
Revenue factors	<ul style="list-style-type: none"> <li>The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.</li> <li>The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.</li> </ul>	<ul style="list-style-type: none"> <li>Head grade estimated using geostatistical techniques in 3D modelling of diamond drilling results.</li> <li>Product will be in standard (-2mm) and granular (-4mm +2mm) form</li> <li>Long term SOP price estimate of US\$567/t SOP, FOB at Massawa, used in Ore Reserve estimation. Price in the range of SOP prices observed in the past several years, adjusted for the port of export. Refer to "Cut-off parameters" section for additional comment.</li> <li>Financial modelling of a shorter period of 60 years was considered when determining project NPV. A long-term price estimate was applied across the 60 years which equates to the long run marginal cost methodology. The resulting average price was US\$569/t SOP, FOB Massawa.</li> <li>Contract product haulage from Colluli to the Port of Massawa has been estimated at US\$73/t SOP sold for product haulage including diesel.</li> </ul>
Market assessment	<ul style="list-style-type: none"> <li>The demand, supply and stock situation for the particular commodity, consumption</li> </ul>	<ul style="list-style-type: none"> <li>SOP is a regularly traded commodity and is sold predominantly by way of supply contracts in a closed market.</li> </ul>



Criteria	Explanation	Commentary
	<p>trends and factors likely to affect supply and demand in the future.</p> <ul style="list-style-type: none"> <li>• A customer and competitor analysis along with the identification of likely market windows for the product.</li> <li>• Price and volume forecasts and the basis for these forecasts.</li> <li>• For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.</li> </ul>	<ul style="list-style-type: none"> <li>• The status of any supply contracts involving DNK is commercially sensitive and is therefore not disclosed.</li> <li>• DNK completed customer and competitive analysis, which is commercially sensitive and is therefore not disclosed.</li> <li>• Colluli is geographically well located to supply Asia, India and the Middle East, and can also supply Europe and America.</li> <li>• Price forecasts were based on marketing analysis, specific to the Colluli potash project, by CRU Consulting, who have assessed supply-demand for both potassium chloride and potassium sulphate. Raw material input costs, export taxes and logistics costs have all been considered as part of the analysis and the relative position of the Colluli project on the global cost curve considered.</li> <li>• The forecasts provided to DNK were based on detailed market intelligence, and a team of industry experts.</li> <li>• Colluli will produce primary SOP. Approximately 50% of the world's SOP is produced by primary processes with the remainder using secondary process involving the conversion of potassium chloride to SOP by adding sulphuric acid in a high cost thermal conversion process. This provides price support to the lower cost primary producers such as Colluli.</li> <li>• The assumed price combines the anticipated price for standard product (56% of output) and a premium price for granulated product (44% of output).</li> <li>• Ongoing demand for SOP globally is expected and attributed to increasing world population, declining arable land, disposable income and dietary changes, and under-application of potassium fertilisers in developing countries. Combined annual demand growth rates of 1% are expected until 2040.</li> <li>• Expandability of existing operations outside of China is constrained and there are limited greenfield development projects for primary production of SOP at an advanced stage. No new projects outside of China are expected to commission prior to 2019.</li> <li>• Analysis of the China market demonstrates that when SOP and MOP prices converge, switching takes place with a preference for SOP over MOP. Colluli's cost structures suggest growth well beyond the current SOP market size is possible.</li> </ul>
Economic	<ul style="list-style-type: none"> <li>• The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.</li> <li>• NPV ranges and sensitivity to variations in the significant assumptions and inputs.</li> </ul>	<ul style="list-style-type: none"> <li>• It is not practical to assess the total project economic analysis due to the long timelines involved.</li> <li>• The economic assessment therefore is based on an economic period of review of 60 years, with production assumed to commence in Quarter 3, 2020.</li> <li>• Discount rate of 10% "real" used for long term financial analysis.</li> <li>• Pit shell optimizations generated using undiscounted cash flows.</li> <li>• All evaluations conducted in "real" currency with a reference date of 1 July 2018.</li> <li>• Provision was made for corporate tax at 38% of operating profit.</li> <li>• No Value Added Tax (VAT) or Goods and Services Tax (GST) payable.</li> <li>• The 60-year economic assessment estimates a net NPV of US\$883M; IRR of 29.2%.</li> <li>• NPV is mainly sensitive to SOP price. Reducing SOP price by 10% reduces NPV from US\$883M to US\$663M (-25%), whilst reducing the price by 20% reduces the project NPV to US\$437M (-50%). Increasing the SOP price by 10% increases NPV by 25% to US\$1,102M.</li> <li>• NPV is less sensitive to changes in operating costs. A 20% increase in operating costs reduces the project NPV to US\$695M (-21%).</li> <li>• NPV reduces by 5% to US\$842M when development capital is increased by 20%.</li> <li>• To determine sensitivity, analysis of a case that considers Phase II not being built, shows the Phase I only economic assessment estimates a net NPV of US\$505M; IRR of 28.1%; Payback period of 3.25 years.</li> </ul>
Social	<ul style="list-style-type: none"> <li>• The status of agreements with key stakeholders and matters leading to social licence to operate.</li> </ul>	<ul style="list-style-type: none"> <li>• Colluli is a joint venture between the Eritrean National Mining Company and DNK, via the equally owned Colluli Mining Share Company (CMSC).</li> <li>• Socio-economic and cultural heritage baseline reports have been undertaken and reviewed by the DOE.</li> <li>• Socio-economic and cultural heritage impacts have been assessed and have been documented as part of the SEIA process. Several social impact management plans have been developed as part of the SEIA process.</li> <li>• DNK has implemented a Stakeholder Engagement Program and is actively engaging with a wide range of project stakeholders.</li> <li>• No resettlement programs will be required.</li> <li>• There are believed to be no social related issues that do not have a reasonable</li> </ul>



Criteria	Explanation	Commentary
Other	<ul style="list-style-type: none"> <li>To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:</li> <li>Any identified material naturally occurring risks.</li> <li>The status of material legal agreements and marketing arrangements.</li> <li>The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study.</li> </ul> <p>Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.</p>	<p>likelihood of being resolved.</p> <ul style="list-style-type: none"> <li>Seasonal discharges from the Sariga and Galli-Colluli river systems to the saltpan will need to be mitigated. Appropriate measures are designed to protect infrastructure at Colluli and along the product haulage route.</li> <li>A liquefaction assessment recommended that pit slopes be managed by:               <ul style="list-style-type: none"> <li>providing additional features in the pit design;</li> <li>installing monitoring equipment;</li> <li>developing action /response plans;</li> <li>engaging appropriate consultants to monitor and provide recommendations</li> </ul> </li> <li>Weather conditions at site are hot and dry, with low rainfall and a high salt environment. Equipment and infrastructure was specified that is fit-for-purpose, and appropriate operating procedures will be developed and implemented for construction and operations.</li> <li>In 2017, CMSC signed Heads of Agreements (HOAs) with a number of prominent offtake parties comprising distributors, traders, and end-users.</li> <li>Interest in procuring CMSC product remains high, with the aggregate demand in the HOAs totalling 850 ktpa.</li> <li>Marketing is currently in the process of converting these HOAs to Binding Bankable offtake agreements.</li> <li>CMSC signed a Mining Agreement with the Government of the State of Eritrea on the 31st January 2017. The agreement covers the mining and exploration licence areas.</li> <li>Seven Mining Licenses covering 63km<sup>2</sup> were subsequently granted, which cover the Ore Reserve area required for the first sixty years of mining and the proposed sites for the open pits, waste dumps, process plant, associated infrastructure. The mining licence is valid for a maximum period of 20 years or the life of the deposit, whichever is shorter. The license may be renewed for a maximum period of ten years on each renewal; subject to the licensee demonstrating the continued economic viability of mining the deposit and that the licensee has fulfilled the obligations specified in the license and is not in breach of any provisions.</li> <li>An additional exploration tenement to the west of the mining licence area, with undefined mineralisation, was awarded to CMSC in October 2017.</li> <li>Land was granted to the Colluli Potash Project for the development of coastal facilities including a product export terminal at Anfile Bay on 6 June 2014, subject to economic viability and social and environmental conditions being met. The Anfile Bay export terminal will not be developed as part of this FS.</li> </ul>
Classification	<ul style="list-style-type: none"> <li>The basis for the classification of the Ore Reserves into varying confidence categories.</li> <li>Whether the result appropriately reflects the Competent Person's view of the deposit.</li> <li>The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</li> </ul>	<ul style="list-style-type: none"> <li>Measured Mineral Resources convert to Proved Ore Reserves.</li> <li>Indicated Mineral Resources convert to Probable Ore Reserves.</li> <li>Inferred Mineral Resource regarded as waste for optimization and evaluation purposes.</li> <li>The Colluli Ore Reserve estimate appropriately reflects the Competent Person's views.</li> <li>No Probable Ore Reserve was derived from Measured Mineral Resources.</li> </ul>
Audits or reviews	<ul style="list-style-type: none"> <li>The results of any audits or reviews of Ore Reserve estimates.</li> </ul>	<ul style="list-style-type: none"> <li>The process design and design criteria, metallurgical testwork, plant configuration and process equipment list presented in the PFS were reviewed both internally and by recognised industry independent experts and were found to be appropriate and fit for purpose.</li> <li>No material change to the process flow design has occurred between DFS and FEED.</li> <li>The process design and design criteria, metallurgical testwork, plant configuration and process equipment list presented in the DFS were reviewed by a recognised industry expert and were found to be appropriate and fit for purpose.</li> <li>The front-end engineering design (FEED) scope and report reviewed all aspects of the DFS and recommended changes to improve performance and reduce cost. It also improved the cost estimate accuracy to <math>\pm 10\%</math>.</li> <li>The Competent Person is not aware of any other audits or reviews of the 2015 Colluli DFS or 2018 FEED reports.</li> </ul>
Discussion of relative accuracy/confidence	<ul style="list-style-type: none"> <li>Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the</li> </ul>	<ul style="list-style-type: none"> <li>In the Competent Person's view, the Colluli DFS and FEED achieve the required level of confidence in the modifying factors to justify estimation of an Ore Reserve. The DFS and FEED determined a mine plan and production schedule that is technically achievable and economically viable.</li> <li>FEED capital and operating cost estimates are based on quoted prices and rates</li> </ul>



Criteria	Explanation	Commentary
	<p>application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.</p> <ul style="list-style-type: none"> <li>• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.</li> <li>• Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.</li> <li>• It is recognized that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.</li> </ul>	<p>from competitive tenders, material take-offs from drawings, and allowances.</p> <ul style="list-style-type: none"> <li>• The Ore Reserve classification has low sensitivity to changes in the Modifying Factors and no conversion of Measured Mineral Resource to Probable Ore Reserve was required.</li> <li>• Review by independent experts of the process design at the PFS stage indicated that there are no major flaws in the process design, plant configuration and process recovery. No material changes were made to the process design for DFS or FEED. Modifying factors are unlikely to change sufficiently with further study to materially change the Ore Reserve.</li> <li>• Detailed design and analysis was based on a 60-year economic period of review with sufficient sustaining capital allowed to enable regeneration of critical items over the 60-year period.</li> <li>• Adopted long-term SOP price of US\$567/t product was used in mine planning. Financial modelling was subsequently completed at a SOP price of US\$569/t product following recommendations from the marketing specialists. Cut-off parameters were not adjusted because the difference in total ore tonnes at each price is negligible (less than 0.02%). This difference in long-term SOP pricing is immaterial to the Ore Reserve estimate.</li> </ul>

— — — ENDS — — —



## About Danakali Limited

Danakali Limited (ASX: DNK) (**Danakali**, or the **Company**) is an ASX-listed company and 50% owner of the Colluli Potash Project (**Colluli** or the **Project**) in Eritrea, East Africa. The Company is currently developing Colluli in partnership with the Eritrean National Mining Corporation (**ENAMCO**).

The Project is located in the Danakil Depression region of Eritrea, and is ~75km from the Red Sea coast, making it one of the most accessible potash deposits globally. Mineralisation within the Colluli resource commences at just 16m, making it the world's shallowest potash deposit. The resource is amenable to open pit mining, which allows higher overall resource recovery to be achieved, is generally safer than underground mining, and is highly advantageous for modular growth.

The Company has completed a Front End Engineering Design (**FEED**) for the production of potassium sulphate, otherwise known as **SOP**. SOP is a chloride free, specialty fertiliser which carries a substantial price premium relative to the more common potash type; potassium chloride (or **MOP**). Economic resources for production of SOP are geologically scarce. The unique composition of the Colluli resource favours low energy input, high potassium yield conversion to SOP using commercially proven technology. One of the key advantages of the resource is that the salts are present in solid form (in contrast with production of SOP from brines) which reduces infrastructure costs and substantially reduces the time required to achieve full production capacity.

The resource is favourably positioned to supply the world's fastest growing markets.

Our vision is to bring Colluli into production using the principles of risk management, resource utilisation and modularity, using the starting module (**Module 1**) as a growth platform to develop the resource to its full potential.

### Competent Persons Statement (Sulphate of Potash Mineral Resource)

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 @ 11% K<sub>2</sub>O of Measured Resources, 951Mt @ 11% K<sub>2</sub>O of Indicated Resources and 35Mt @ 10% K<sub>2</sub>O of Inferred Resources.

The information relating to the 2015 Colluli Mineral Resource estimate was compiled by Mr. John Tyrrell, under the supervision of Mr. Stephen Halabura M. Sc. P. Geo. Fellow of Engineers Canada (Hon), Fellow of Geoscientists Canada, and a geologist with over 25 years' experience in the potash mining industry.

Mr. Tyrrell is a member of the Australian Institute of Mining and Metallurgy and a full-time employee of AMC. Mr. Tyrrell 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**).

Mr. Tyrrell and Mr. Halabura consent to the inclusion of information relating to the 2015 Resource Statement in the form and context in which it appears.

### Competent Persons Statement (Sulphate of Potash Ore Reserve)

The January 2018 Colluli Ore Reserve is reported according to the JORC Code and estimated at 1,100Mt @ 10.5% K<sub>2</sub>O Equiv. The Ore Reserve is classed as 285Mt @ 11.3% K<sub>2</sub>O Equiv. Proved and 815Mt @ 10.3% K<sub>2</sub>O Equiv. Probable. The Competent Person for the estimate is Mr Mark Chesher, a mining engineer with more than 30 years' experience in the mining industry. Mr. Chesher is a Fellow of the AusIMM, a Chartered Professional, a full-time employee of AMC Consultants Pty Ltd, and 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. Mr Chesher consents to the inclusion of information relating to the Ore Reserve in the form and context in which it appears.

In reporting the Mineral Resources and Ore Reserves referred to in this public release, AMC Consultants Pty Ltd acted as an independent party, has no interest in the outcomes of Colluli and has no business relationship with Danakali 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 Persons believe that there is no conflict of interest in undertaking the assignments which are the subject of the statements.

### Competent Persons Statement (Rock Salt Mineral Resource)

Colluli has a JORC-2012 compliant Measured, Indicated and Inferred Mineral Resource estimate of 347Mt @ 96.9% NaCl. The Mineral Resource estimate contains 28Mt @ 97.2% NaCl of Measured Resources, 180Mt @ 96.6% NaCl of Indicated Resources and 139Mt @ 97.2% NaCl of Inferred Resources.

The information relating to the Colluli Rock Salt Mineral Resource estimate was compiled by Mr. John Tyrrell. Mr. Tyrrell is a member of the Australasian Institute of Mining and Metallurgy (AusIMM) and a full-time employee of AMC. Mr. Tyrrell has more than 25 years' experience in the field of Mineral Resource



estimation. He has sufficient experience relevant to the style of mineralisation and type of the deposit under consideration, and in resource model development, to qualify as a Competent Person as defined in the JORC Code.

Mr Tyrrell consents to the inclusion of the information relating to the rock salt Mineral Resource in the form and context in which it appears.

#### Quality control and quality assurance

Danakali exploration programs follow standard operating and quality assurance procedures to ensure that all sampling techniques and sample results meet international reporting standards. Drill holes are located using GPS coordinates using WGS84 Datum, all mineralisation intervals are downhole and are true width intervals.

The samples are derived from HQ diamond drill core, which in the case of carnallite ores, are sealed in heat-sealed plastic tubing immediately as it is drilled to preserve the sample. Significant sample intervals are dry quarter cut using a diamond saw and then resealed and double bagged for transport to the laboratory.

Halite blanks and duplicate samples are submitted with each hole. Chemical analyses were conducted by Kali-Umwelttechnik GmbH, Sondershausen, Germany, utilising flame emission spectrometry, atomic absorption spectroscopy and ion chromatography. Kali-Umwelttechnik (KUTECH) has extensive experience in analysis of salt rock and brine samples and is certified according to DIN EN ISO/IEC 17025 by the Deutsche Akkreditierungsstelle GmbH (DAR). The laboratory follows standard procedures for the analysis of potash salt rocks chemical analysis (K<sup>+</sup>, Na<sup>+</sup>, Mg<sup>2+</sup>, Ca<sup>2+</sup>, Cl<sup>-</sup>, SO<sub>4</sub><sup>2-</sup>, H<sub>2</sub>O) and X-ray diffraction (XRD) analysis of the same samples as for chemical analysis to determine a qualitative mineral composition, which combined with the chemical analysis gives a quantitative mineral composition.

#### Forward looking statements and disclaimer

The information in this document is published to inform you about Danakali and its activities. Danakali has endeavoured to ensure that the information enclosed is accurate at the time of release, and that it accurately reflects the Company's intentions. All statements in this document, other than statements of historical facts, that address future production, project development, reserve or resource potential, exploration drilling, exploitation activities, corporate transactions and events or developments that the Company expects to occur, are forward looking statements. Although the Company believes the expectations expressed in such statements are based on reasonable assumptions, such statements are not guarantees of future performance and actual results or developments may differ materially from those in forward-looking statements.

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 Colluli will proceed as planned. Accordingly, readers should not place undue reliance on forward looking information. Mineral Resources and Ore Reserves have been reported according to the JORC Code, 2012 Edition. 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 document. Recipients should make their own enquiries in relation to any investment decisions.

Mineral Resource, Ore Reserve, and financial assumptions made in this presentation are consistent with assumptions detailed in the Company's ASX announcements dated 25 February 2015, 23 September 2015, 15 August 2016, 1 February 2017 and 29 January 2018, which continue to apply and have not materially changed. The Company is not aware of any new information or data that materially affects assumptions made.